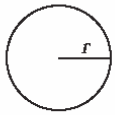
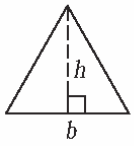
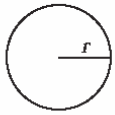
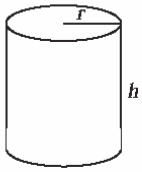
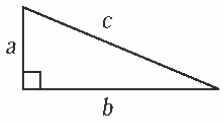
Part VI: Grade 8

- Formula Chart
- Test Blueprint
- Test Content
- Sample Items
- Vocabulary List

EDITOR'S NOTE: Some scored student work may contain labeling elements used when the items were pilot tested. These labeling elements are separate and distinct from and are not a part of the test items themselves.

CMT Formula Chart

Circumference	circle	$C = 2\pi r$	
	pi = π	Use 3.14 OR $\frac{22}{7}$	
Area	triangle	$A = \frac{1}{2}bh$ 	circle $A = \pi r^2$ 
Volume	cylinder	$V = \pi r^2 h$	
Pythagorean Theorem	right triangle	$a^2 + b^2 = c^2$	

Measurement Conversion

Customary Length	1 mile = 5,280 feet
Customary Volume	1 gallon = 4 quarts 1 quart = 2 pints 1 pint = 2 cups 1 cup = 8 ounces
Customary Weight	1 ton = 2,000 pounds 1 pound = 16 ounces
Time	1 year = 365 days 1 year = 52 weeks

Connecticut Mastery Test – Fourth Generation

Mathematics Grade 8 Test Blueprint

Content Standards and Strands	# of multiple-choice items	# of open-ended items	# of grid-in items
Numerical and Proportional Reasoning			
1. Place Value	**4**		
2. Pictorial Representations of Numbers	**NT**	**NT**	**NT**
3. Equivalent Fractions, Decimals and Percents	**4**	**2**	
4. Order, Magnitude and Rounding of Numbers	**4**	**2**	
5. Models for Operations	**2**	**2**	
6. Basic Facts	**NT**	**NT**	**NT**
7. Computation with Whole Numbers and Decimals			**6**
8. Computation with Fractions and Integers	**6**		
9. Solve Word Problems	**2**	**2**	**2**
10. Numerical Estimation Strategies	**NT**	**NT**	**NT**
11. Estimating Solutions to Problems		**4**	
12. Ratios and Proportions	**4**	**2**	
13. Computation with Percents			**6**
Geometry and Measurement			
14. Time	**NT**	**NT**	**NT**
15. Approximating Measures	**6**		
16. Customary and Metric Measures	**2**	**2**	**2**
17. Geometric Shapes and Properties	**4**	**2**	
18. Spatial Relationships	**7**	**4**	
Working with Data: Probability and Statistics			
19. Tables, Graphs and Charts	**2**	**2**	
20. Statistics and Data Analysis	**4**	**1**	**2**
21. Probability	**2**	**2**	
24. Classification and Logical Reasoning	**2**	**2**	
Algebraic Reasoning: Patterns and Functions			
22. Patterns	**2**	**2**	
23. Algebraic Concepts	**4**	**3**	**2**
Integrated Understandings			
25. Mathematical Applications		**2**	
TOTAL	**61**	**36**	**20**

* NT = Strand not tested at this grade level

Connecticut Mastery Test – Fourth Generation
Mathematics Grade 8 Content

Strand	Grade 8 Concepts/Skills Assessed
1. Place Value	A. Identify alternative forms of expressing numbers using scientific notation.
2. Pictorial Representation of Numbers	Not tested
3. Equivalent Fractions, Decimals and Percents	A. Rename fractions and mixed numbers as equivalent decimals and vice versa. B. Rename fractions and decimals as equivalent percents and vice versa. C. Identify and/or shade decimals, fractions or percents of regions or sets.
4. Order, Magnitude and Rounding of Numbers	A. Order fractions and decimals including mixed numbers in context. B. Describe magnitude or order of mixed numbers, fractions and decimals in context. C. Round mixed numbers, fractions and decimals in context. D. Locate points on number lines and scales, including fractions, mixed numbers, decimals and integers.
5. Models for Operations	A. Identify the appropriate operation or equation to solve a story problem. B. Write a story problem from an equation.
6. Basic Facts	Not tested
7. Computation with Whole Numbers and Decimals	A. Add and subtract 3-, 4- and 5-digit whole numbers, money amounts and decimals. B. Multiply 2- and 3-digit whole numbers, money amounts and decimals by 1- or 2-digit numbers and decimals. Divide 2- and 3- digit whole numbers, money amounts and decimals by 1-digit whole numbers and decimals. C. Multiply and divide whole numbers and decimals by 10, 100, 1,000, 0.1 and 0.01.
8. Computation with Fractions and Integers	A. Add and subtract fractions and mixed numbers with reasonable and appropriate denominators. B. Multiply whole numbers and fractions by fractions and mixed numbers. C. Add or multiply positive and negative integers.
9. Solve Word Problems	A. Solve multistep problems involving fractions, mixed numbers, decimals and money amounts with or without extraneous information. B. Solve multistep problems involving whole numbers, mixed numbers, money amounts and decimals. C. Solve multistep problems involving whole numbers, fractions, mixed numbers, decimals or money amounts, and explain how the solution was determined.
10. Numerical Estimation Strategies	Not tested
11. Estimating Solutions to Problems	A. Determine a reasonable estimate, and describe the strategy used to arrive at the estimate. B. Given an estimate as a solution for problems involving whole numbers, mixed numbers, decimals and percents, judge its reasonableness and justify the decision.
12. Ratios and Proportions	A. Solve problems involving ratios. B. Solve problems involving proportions in context. C. Solve multistep problems involving ratio or proportion, and explain how the solution was determined.
13. Computation with Percents	A. Find percents of whole numbers or the percent a given number is of another number. B. Solve problems involving percents in context.
14. Time	Not tested
15. Approximating Measures	A. Estimate lengths, areas, volumes and angle measures.

Strand	Grade 8 Concepts/Skills Assessed
16. Customary and Metric Measures	A. Measure and determine perimeters, areas and volumes. Explain or show how the solution was determined. B. Determine perimeters, areas and volumes. C. Solve problems involving conversions and/or operations within customary or metric units of measure.
17. Geometric Shapes and Properties	A. Identify, describe and classify 2- and 3-dimensional geometric shapes and figures. B. Draw, describe and classify 2- and 3-dimensional geometric shapes and figures.
18. Spatial Relationships	A. Identify congruent and similar figures. B. Draw, classify, describe and/ or explain why figures are similar. C. Locate and draw points on four-quadrant coordinate grids. D. Identify geometric transformations (reflections, rotations and translations). E. Draw geometric transformations (reflections, rotations and translations). F. Relate 2- and 3-dimensional representations and vice versa.
19. Tables, Graphs and Charts	A. Identify correct information from tables, graphs and charts. B. Create graphs from data in tables and charts.
20. Statistics and Data Analysis	A. Draw reasonable conclusions from data in tables, graphs and charts. B. State a conclusion and explain why an answer is or is not reasonable based on the data. C. Solve problems involving means, medians, modes and ranges of sets of data.
21. Probability	A. Identify correct solutions to problems involving elementary notions of probability and fairness expressed as fractions, decimals or percents. B. Solve problems involving elementary notions of probability and fairness expressed as fractions, decimals or percents and justify solutions. C. Solve problems involving expected outcomes or predictions and justify solutions.
22. Patterns	A. Identify the missing terms in a pattern, or identify rules for a given pattern using numbers and attributes. B. Extend or complete patterns and state rules for given patterns using numbers and attributes.
23. Algebraic Concepts	A. Solve simple equations, including 2-step equations. B. Solve multistep problems using algebraic concepts. C. Evaluate expressions or solve equations and use formulas. D. Represent situations with algebraic expressions or equations. E. Write an expression or equation to represent a situation.
24. Classification and Logical Reasoning	A. Solve problems involving the organization of data. B. Sort or classify objects, and draw logical conclusions from data including Venn diagrams, combinations, permutations and transitive reasoning questions.
25. Mathematical Applications	A. Solve extended numerical, statistical and spatial problems.

GRADE 8 SAMPLE ITEMS

1. Place Value - MC

Which number is equal to 3.02×10^4 ?

- ○ 0.000302
- ○ 0.0302
- ⊙ 30,200
- ○ 3,020,000

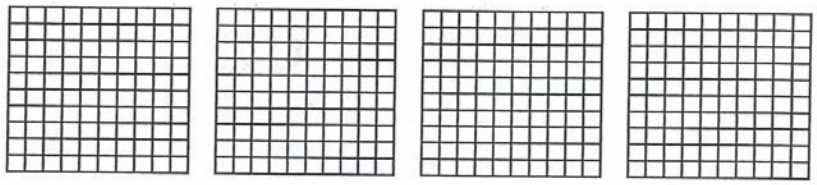
3. Equivalent Fractions, Decimals and Percents - MC

At a school bake sale, $\frac{2}{5}$ of the number of pies sold were apple pies. Which percent is equal to $\frac{2}{5}$?

- ○ 10%
- ○ 20%
- ⊙ 40%
- ○ 60%

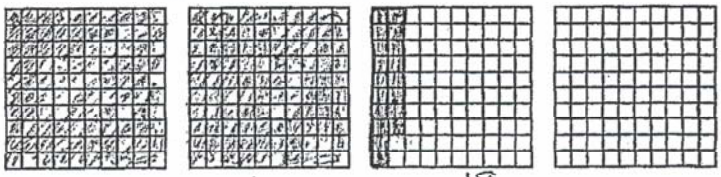
3. Equivalent Fractions, Decimals and Percents - OE

S-1 Shade in 2.18 of the place-value blocks.



Key: □ = .01

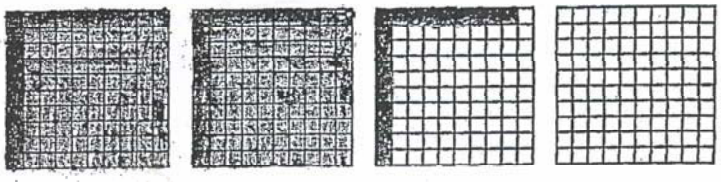
S1A Shade in 2.18 of the place-value blocks.



1 1 Key: ☐ = .01 ◦ 18

1

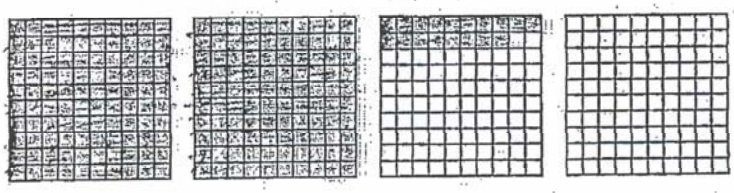
S1B Shade in 2.18 of the place-value blocks.



Key: ☐ = .01

1

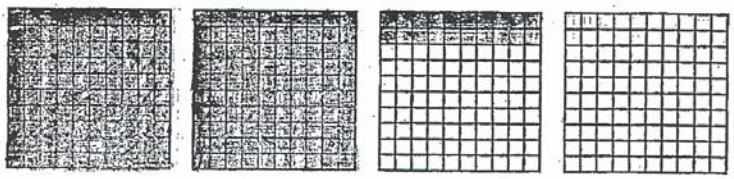
S1C Shade in 2.18 of the place-value blocks.



Key: ☐ = .01

1

S1D Shade in 2.18 of the place-value blocks.



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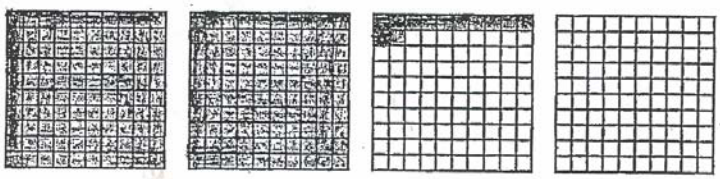
S1E Shade in 2.18 of the place-value blocks.



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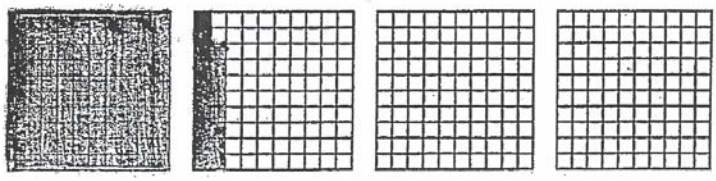
S1F Shade in 2.18 of the place-value blocks.



Key: □ = .01

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4. Order, Magnitude and Rounding of Numbers - MC

Wendal and his 3 friends compared the weights of their backpacks. The group borrowed a scale from their homeroom teacher and measured the weight of the 4 backpacks. The table below shows the results of their measurements.

Backpack Weights

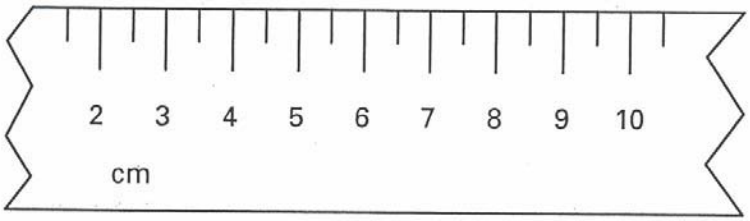
Owner	Weight (in pounds)
Wendal	$17\frac{3}{8}$
Jamie	$17\frac{5}{16}$
Raul	$17\frac{3}{4}$
Mandy	$17\frac{9}{16}$

Who had the heaviest backpack?

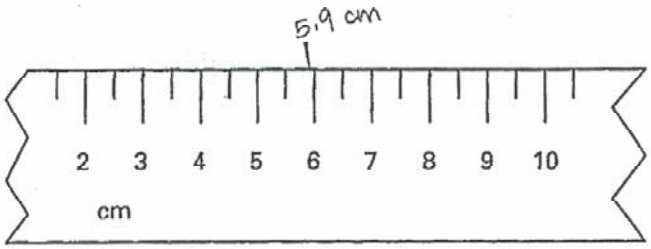
- ○ Wendal
- ○ Jamie
- ◉ Raul
- ○ Mandy

4. Order, Magnitude and Rounding of Numbers - OE

S-2 On the ruler below, mark an X at the point where 5.9 cm would be.

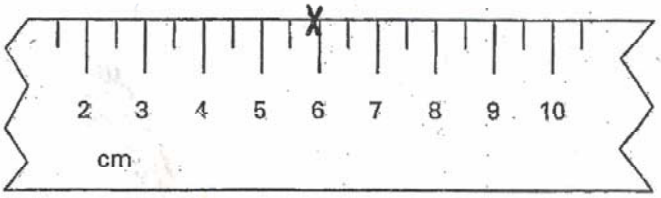


S2A On the ruler below, mark an X at the point where 5.9 cm would be.



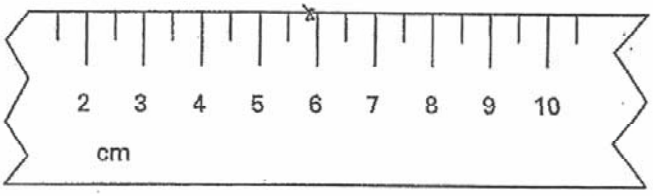
1

S2B On the ruler below, mark an X at the point where 5.9 cm would be.



1

S2C On the ruler below, mark an X at the point where 5.9 cm would be.



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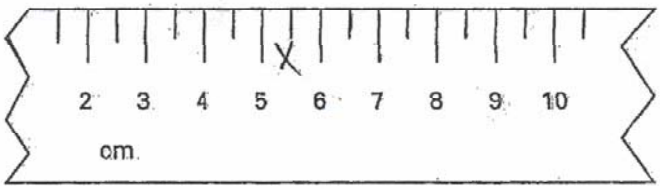
S2D On the ruler below, mark an X at the point where 5.9 cm would be.



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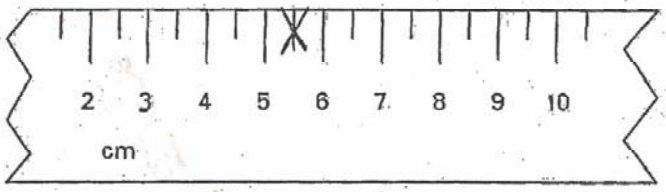
S2E On the ruler below, mark an X at the point where 5.9 cm would be.



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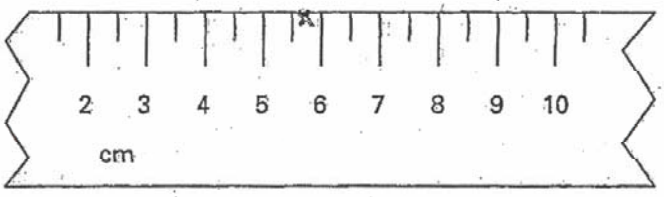
S2F On the ruler below, mark an X at the point where 5.9 cm would be.



0

5. Models for Operations - MC

A farmer had 15.9 pounds of feed to give to her cows. She had 4 feeding bins she used to feed the cows. If she separated the feed evenly into the 4 bins, which number sentence could be used to determine the amount in one bin, b?

- ○ $15.9 \times 4 = b$
- ◉ $15.9 \div 4 = b$
- ○ $15.9 - 4 = b$
- ○ $15.9 + 4 = b$

5. Models for Operations - OE

S-3 Write a story problem that can be solved using the number sentence

S3A Write a story problem that can be solved using the number sentence

$3 \times 8.3 = \square$.

John, Peter, and Brian decided to combine all their money to get a gift for their parents. If each person had $8.30, how much money would they have after combining it?

2

S3B Write a story problem that can be solved using the number sentence

$3 \times 8.3 = \square$.

Malina had three plastic containers with $8\frac{3}{10}$ pieces of chocolate cake in each. How many pieces of cake does Malina have altogether?

2

S3C Write a story problem that can be solved using the number sentence

$3 \times 8.3 = \square$.

Benny had $8.30 his mom said she would tripel it if he did his chors. ~~$24~~ so in the end he had $24.90.

2

S3D Write a story problem that can be solved using the number sentence

$3 \times 8.3 = \square$.

Sandy made a thriple batche of cookies There are 8.3 cookies in each batch.

1

S3E Write a story problem that can be solved using the number sentence

$3 \times 8.3 = \square$.

If Lovie had 8.3 cm of string how much would he have if he bought 3 times as much?

1

S3F Write a story problem that can be solved using the number sentence

$3 \times 8.3 = \square$.

My mom gave me $8.3 to buy a book. But the book cost 3 times more than the money that I have. How much money do I need?

1

S3G Write a story problem that can be solved using the number sentence

$3 \times 8.3 = \square$.

A baseball player had 3 homeruns, he needs 8.3 more homeruns to set a record. What would he have to get?

0

S3H Write a story problem that can be solved using the number sentence

$3 \times 8.3 = \square$.

When you do multiplication = you multiple the 3x8.3=249 and count the number after the period and place like 24.9

0

S3I Write a story problem that can be solved using the number sentence

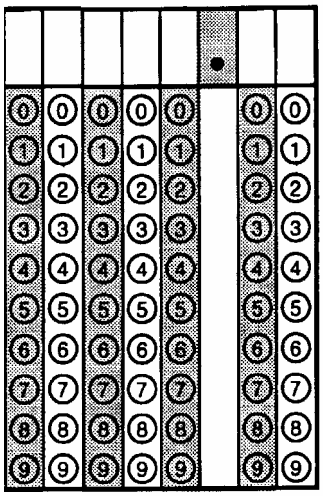
$3 \times 8.3 = \square$.

Three Dogs met eight point three other Dogs and they all hung out

0

7. Computation with Whole Numbers and Decimals - GR

5,006.2 − 2,904.88 =



8. Computation with Fractions - MC

$2\frac{1}{6} + 1\frac{3}{5} =$

⊙ $3\frac{23}{30}$

○ $3\frac{18}{30}$

○ $3\frac{4}{30}$

○ $3\frac{4}{11}$

9. Solve Word Problems - MC

Jerry had $3\frac{1}{2}$ cups of mozzarella cheese and $2\frac{3}{4}$ cups of cheddar cheese to put on 3 pizzas. He also added $1\frac{1}{2}$ cups of Parmesan cheese to the pizzas. In all, how many cups of cheese did he put on the pizzas?

○ $10\frac{3}{4}$ cups

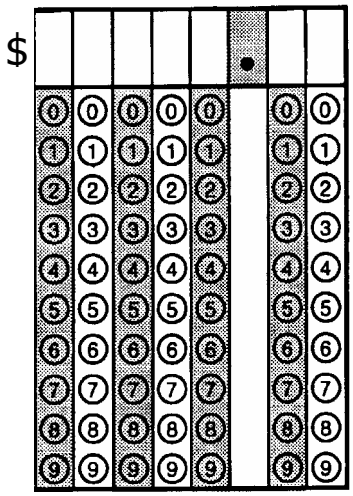
⊙ $7\frac{3}{4}$ cups

○ $7\frac{1}{4}$ cups

○ $6\frac{5}{8}$ cups

9. Solve Word Problems - GR

Kwan went shopping for new clothes. He bought 2 shirts for $18.95 each and 3 pairs of shorts for $15.50 each. If he gave the cashier $100, how much change should he get back?



9. Solve Word Problems - OE

S-1 Female gray squirrels generally live longer than male gray squirrels. The table below shows the life spans of 6 squirrels that were part of a study.

Female Squirrels	Life Span	Male Squirrels	Life Span
Daphne	11.3 years	Boomer	8.4 years
Kiwi	9.7 years	Chipper	9.2 years
Peanut	10.5 years	Rocket	7.9 years

According to the table, what was the difference, in years, of the average life span of a female gray squirrel and a male gray squirrel? _____

Show your work or explain how you found your answer.

S1A Female gray squirrels generally live longer than male gray squirrels. The table below shows the life spans of 6 squirrels that were part of a study.

Female Squirrels	Life Span	Male Squirrels	Life Span
Daphne	11.3 years	Boomer	8.4 years
Kiwi	9.7 years	Chipper	9.2 years
Peanut	10.5 years	Rocket	7.9 years

According to the table, what was the difference, in years, of the average life span of a female gray squirrel and a male gray squirrel? 2 yrs.

Show your work or explain how you found your answer.

2

11.3
9.7
+10.5
3 | 31.5 = 10.5
↑ average life span of female gray squirrel

8.4
9.2
7.9
3 | 25.5 = 8.5
↑ average life span of a male gray squirrel

10.5
− 8.5
2 → difference of life spans

First, I found the average of both the male and female gray squirrels's life spans. Then, I subtracted the smaller life span # from the larger one to get the difference.

S1B Female gray squirrels generally live longer than male gray squirrels. The table below shows the life spans of 6 squirrels that were part of a study.

Female Squirrels	Life Span	Male Squirrels	Life Span
Daphne	11.3 years	Boomer	8.4 years
Kiwi	9.7 years	Chipper	9.2 years
Peanut	10.5 years	Rocket	7.9 years

According to the table, what was the difference, in years, of the average life span of a female gray squirrel and a male gray squirrel? 2

Show your work or explain how you found your answer.

2

11.3
9.7
+10.5
31.5
3
10.5 −

8.4
9.2
+ 7.9
25.5
3
8.5 = (2)

S1C Female gray squirrels generally live longer than male gray squirrels. The table below shows the life spans of 6 squirrels that were part of a study.

Female Squirrels	Life Span	Male Squirrels	Life Span
Daphne	11.3 years	Boomer	8.4 years
Kiwi	9.7 years	Chipper	9.2 years
Peanut	10.5 years	Rocket	7.9 years

According to the table, what was the difference, in years, of the average life span of a female gray squirrel and a male gray squirrel? 2 years

2

Show your work or explain how you found your answer.

I averaged each life span and the subtracted

S1D Female gray squirrels generally live longer than male gray squirrels. The table below shows the life spans of 6 squirrels that were part of a study.

Female Squirrels	Life Span	Male Squirrels	Life Span
Daphne	11.3 years	Boomer	8.4 years
Kiwi	9.7 years	Chipper	9.2 years
Peanut	10.5 years	Rocket	7.9 years

According to the table, what was the difference, in years, of the average life span of a female gray squirrel and a male gray squirrel? ~~Females=10.5 Years~~ Males - 8.5 years

1

Show your work or explain how you found your answer.

$11.3 + 10.5 + 9.7 = 31.5$ ÷ 3 = 10.5 years

$9.2 + 8.4 + 7.9 = 25.5$ ÷ 3 = 8.5 years

I got my answer by adding at the number of years for the females and divide them by 3. I did the same to the males.

S1E Female gray squirrels generally live longer than male gray squirrels. The table below shows the life spans of 6 squirrels that were part of a study.

Female Squirrels	Life Span	Male Squirrels	Life Span
Daphne	11.3 years	Boomer	8.4 years
Kiwi	9.7 years	Chipper	9.2 years
Peanut	10.5 years	Rocket	7.9 years

According to the table, what was the difference, in years, of the average life span of a female gray squirrel and a male gray squirrel? 2.0 **1**

Show your work or explain how you found your answer.

I subtracted

S1F Female gray squirrels generally live longer than male gray squirrels. The table below shows the life spans of 6 squirrels that were part of a study.

Female Squirrels	Life Span	Male Squirrels	Life Span
Daphne	11.3 years	Boomer	8.4 years
Kiwi	9.7 years	Chipper	9.2 years
Peanut	10.5 years	Rocket	7.9 years

According to the table, what was the difference, in years, of the average life span of a female gray squirrel and a male gray squirrel? 6.0 **1**

Show your work or explain how you found your answer.

female
11.3
9.7
10.5
31.5

male
8.4
9.2
7.9
25.5

31.5
−25.5
6.0

I added up all of the female squirrel life span then all of the males. Then I subtracted the female total from the female total.

S1G Female gray squirrels generally live longer than male gray squirrels. The table below shows the life spans of 6 squirrels that were part of a study.

Female Squirrels	Life Span	Male Squirrels	Life Span
Daphne	11.3 years	Boomer	8.4 years
Kiwi	9.7 years	Chipper	9.2 years
Peanut	10.5 years	Rocket	7.9 years

According to the table, what was the difference, in years, of the average life span of a female gray squirrel and a male gray squirrel? 9.5 years

Show your work or explain how you found your answer.

0

11.3
9.7
10.5
8.4
9.2
+7.9
57 ÷ 6 = 9.5 years

S1H Female gray squirrels generally live longer than male gray squirrels. The table below shows the life spans of 6 squirrels that were part of a study.

Female Squirrels	Life Span	Male Squirrels	Life Span
Daphne	11.3 years	Boomer	8.4 years
Kiwi	9.7 years	Chipper	9.2 years
Peanut	10.5 years	Rocket	7.9 years

According to the table, what was the difference, in years, of the average life span of a female gray squirrel and a male gray squirrel? .3 yrs

Show your work or explain how you found your answer.

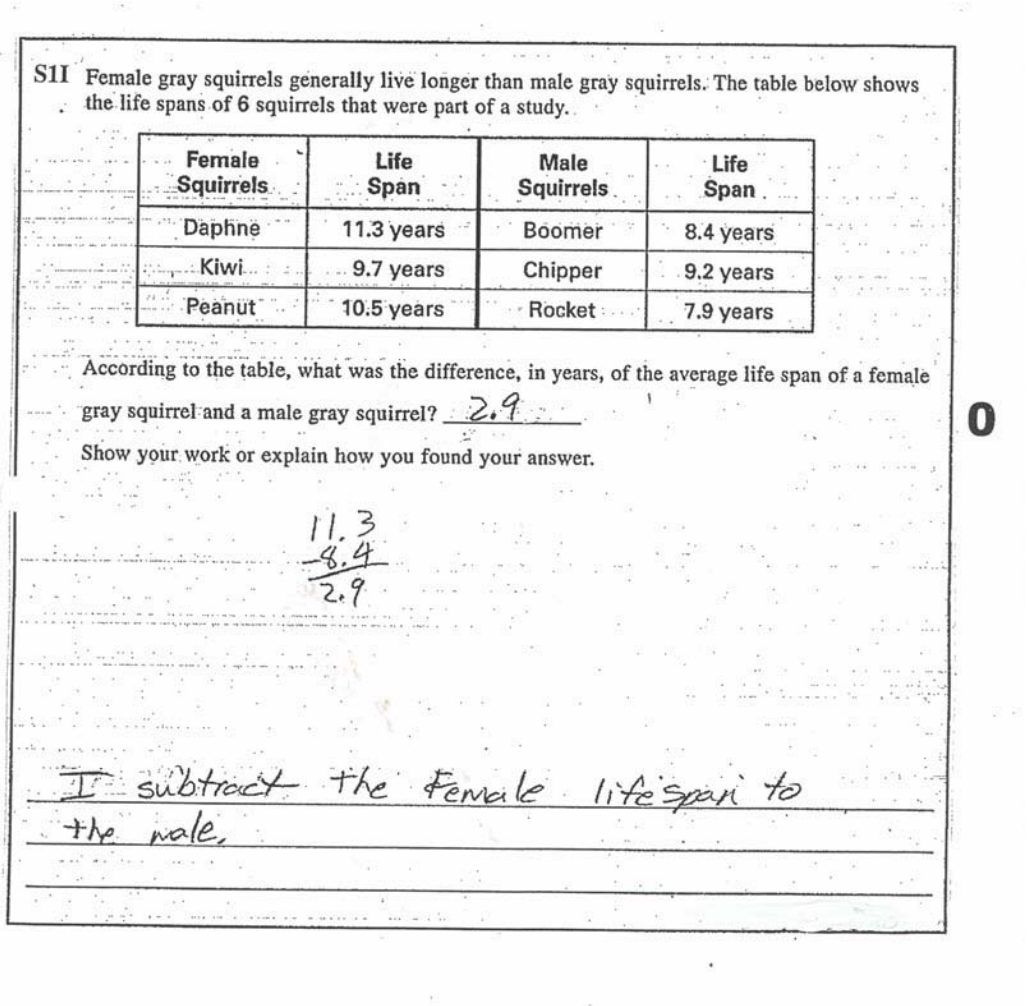
0

11.3 yrs − 9.7 yrs = 1.6

9.12 yrs − 7.9 yrs = 1.3

1.6 yrs − 1.3 yrs = .3 yrs

Found avg for both male/female then subtracted.



S1I Female gray squirrels generally live longer than male gray squirrels. The table below shows the life spans of 6 squirrels that were part of a study.

Female Squirrels	Life Span	Male Squirrels	Life Span
Daphne	11.3 years	Boomer	8.4 years
Kiwi	9.7 years	Chipper	9.2 years
Peanut	10.5 years	Rocket	7.9 years

According to the table, what was the difference, in years, of the average life span of a female gray squirrel and a male gray squirrel? 2.9

Show your work or explain how you found your answer.

11.3
−8.4
2.9

I subtract the female life span to the male.

0

11. Estimating Solutions to Problems - OE

A stadium can hold 108,400 people. It was about ¾ full of people for the last footba11 game of the season.

What is a **good estimate** of the number of people who attended the last game? _____

Explain how you made your estimate.

S3A A stadium can hold 108,400 people. It was about $\frac{3}{4}$ full of people for the last football game of the season.

What is a **good estimate** of the number of people who attended the last game? 75,000

Explain how you made your estimate.

At the last football game there was about 100,000 people, and $\frac{3}{4}$ is 75%. 75% out of 100 is 75, so I added on 3 more 0's and I got about 75,000 people.

2

8274011880

S3B A stadium can hold 108,400 people. It was about $\frac{3}{4}$ full of people for the last football game of the season.

What is a **good estimate** of the number of people who attended the last game? 81,000

Explain how you made your estimate.

I figured 75,000 is $\frac{3}{4}$ of 100,000 and 6006 is $\frac{3}{4}$ of 8,000 and then added the two

2

S3C A stadium can hold 108,400 people. It was about $\frac{3}{4}$ full of people for the last football game of the season.

What is a **good estimate** of the number of people who attended the last game? 75,000

Explain how you made your estimate.

I rounded down to 100,000 and used 3/4 of 100,000

2

S-3f A stadium can hold 108,400 people. It was about $\frac{3}{4}$ full of people for the last football game of the season.

What is a **good estimate** of the number of people who attended the last game? 110,000

Explain how you made your estimate.

108,400 is close to 110,000. 3/4 of 10 is about 7 and 3/4 of 100 is 75. put it together and you got 75,700.

1

S3E A stadium can hold 108,400 people. It was about $\frac{3}{4}$ full of people for the last football game of the season.

What is a **good estimate** of the number of people who attended the last game? 81,000

Explain how you made your estimate.

First I took 108,400 and divided it by 4. Then I got my answer 27100. Then I times that by three since the fraction was 3/4 and I got 81300. Then I rounded that down to 81,000.

1

S3F A stadium can hold 108,400 people. It was about $\frac{3}{4}$ full of people for the last football game of the season.

What is a **good estimate** of the number of people who attended the last game? 73,000

Explain how you made your estimate.

I rounded 108,400 to 110,000 and then divided 110,000 by 3 because of 3/4 and subtracted what I got when I divided by 3 and got 73,000

1

S3G A stadium can hold 108,400 people. It was about $\frac{3}{4}$ full of people for the last football game of the season.

What is a **good estimate** of the number of people who attended the last game? 150,000

Explain how you made your estimate.

I guess that it's about half of what it was last year so I figure that 56,000 would be a good estimate

0

S3H A stadium can hold 108,400 people. It was about $\frac{3}{4}$ full of people for the last football game of the season.

What is a **good estimate** of the number of people who attended the last game? 14,000

Explain how you made your estimate.

$\frac{3}{4}$ would be 75% so 114,000 would be 75% of 108,400

0

S3I A stadium can hold 108,400 people. It was about $\frac{3}{4}$ full of people for the last football game of the season.

What is a **good estimate** of the number of people who attended the last game? 98,200

Explain how you made your estimate.

I'm not really sure how I got my answer because I guessed

0

12. Ratios and Proportions - MC

The ratio of pitchers to catchers at a baseball camp was 11:4. If there were 64 catchers, how many pitchers were at the camp?

- ○ 44
- ○ 64
- ⊙ 176
- ○ 256

12. Ratios and Proportions - OE

S-2 An Italian chef made 8 plates of spaghetti for every 3 plates of lasagna.

If she made 78 plates of lasagna, how many plates of spaghetti and lasagna did she make altogether? _____

Show your work or explain how you found your answer.

S2A An Italian chef made 8 plates of spaghetti for every 3 plates of lasagna.

If she made 78 plates of lasagna, how many plates of spaghetti and lasagna did she make altogether? 286

Show your work or explain how you found your answer.

78
÷ 3
26
× 8
208 + 78 = 286

I divided the total number of plates by 3 getting 26 then I multiplied that by eight to get the lasagna plate then I added the # of lasagna plate to the # of spaghetti plates

2

S2B An Italian chef made 8 plates of spaghetti for every 3 plates of lasagna.

If she made 78 plates of lasagna, how many plates of spaghetti and lasagna did she make altogether? 286

Show your work or explain how you found your answer.

$3\overline{)78}$ 26 $\quad 26 \times 8 = 208$ $\quad 208 + 78 = 286$

2

S2C An Italian chef made 8 plates of spaghetti for every 3 plates of lasagna.

If she made 78 plates of lasagna, how many plates of spaghetti and lasagna did she make altogether? 286

Show your work or explain how you found your answer.

$3\overline{)78}$ 26, 6, 18 $\quad 26 \times 8 = 208$, $208 + 78 = 286$

2

S2D An Italian chef made 8 plates of spaghetti for every 3 plates of lasagna.

If she made 78 plates of lasagna, how many plates of spaghetti and lasagna did she make altogether? 282

Show your work or explain how you found your answer.

$\frac{8}{3} = \frac{x}{78}$ $x = 204$

$+78$

282

1

I set up the problem with ratios, then cross multiplied and divided. (78 × 8 ÷ 3). Then I added on the plates of lasagna.

S2E An Italian chef made 8 plates of spaghetti for every 3 plates of lasagna.

If she made 78 plates of lasagna, how many plates of spaghetti and lasagna did she make altogether? 208

Show your work or explain how you found your answer.

1

78 ÷ 3 = 26

26 × 8 = 208

S2F An Italian chef made 8 plates of spaghetti for every 3 plates of lasagna.

If she made 78 plates of lasagna, how many plates of spaghetti and lasagna did she make altogether? 286

Show your work or explain how you found your answer.

I added

1

S2G An Italian chef made 8 plates of spaghetti for every 3 plates of lasagna.

If she made 78 plates of lasagna, how many plates of spaghetti and lasagna did she make altogether? 89

Show your work or explain how you found your answer.

$$\begin{array}{r} {\scriptstyle 1} \\ 78 \\ +\ 8 \\ \hline 89 \end{array}$$

0

S2H An Italian chef made 8 plates of spaghetti for every 3 plates of lasagna.

If she made 78 plates of lasagna, how many plates of spaghetti and lasagna did she make altogether? 702

Show your work or explain how you found your answer.

```
  78
x  8
----
 624
+ 78
----
 702
```

0

S2I An Italian chef made 8 plates of spaghetti for every 3 plates of lasagna.

If she made 78 plates of lasagna, how many plates of spaghetti and lasagna did she make altogether? 624

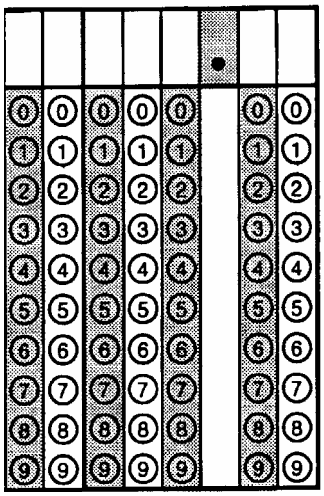
Show your work or explain how you found your answer.

Well if the chef ate 8 plates of spaghettie for every 3 plates of lasagna, then she did the same for the 78 plates of lasagna. So I took 78 times (x) 8 and got, 624.

0

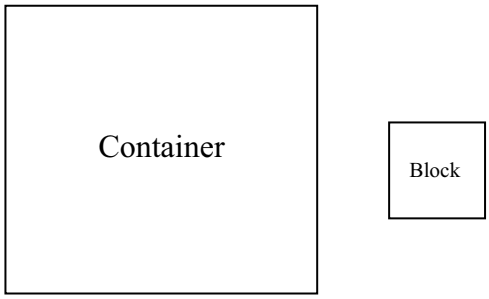
13. Computation with Percents - GR

What is 76% of 56?



15. Approximating Measures - MC

The large square below is the base of a container. The small square is the base of a block.

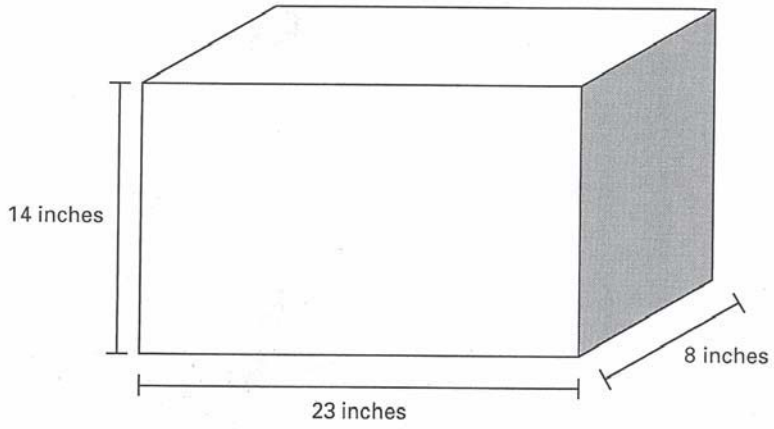


Pablo filled the container evenly to the top with blocks stacked 4 high. Which is the **best** approximation for the number of blocks needed to fill the container evenly?

- ○ 9
- ○ 16
- ⊙ 36
- ○ 64

16. Customary and Metric Measures - OE

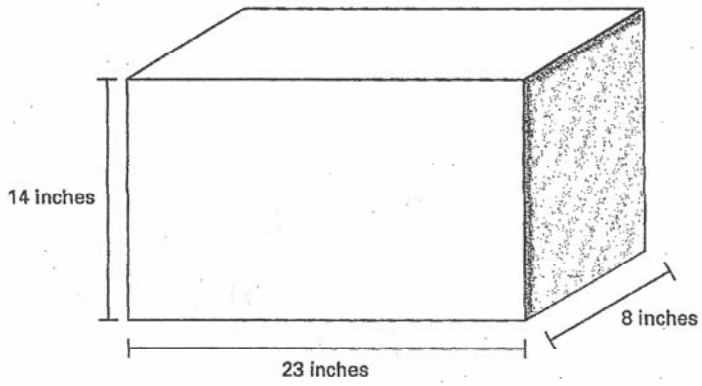
S-3 Phil made sand art decorations. He had a rectangular container that he filled $\frac{1}{2}$ way full of sand. The picture shows the dimensions of the container.



What is the **volume** of the space that Phil filled with sand? _____

Show your work or explain how you found your answer.

S3A Phil made sand art decorations. He had a rectangular container that he filled $\frac{1}{2}$ way full of sand. The picture shows the dimensions of the container.



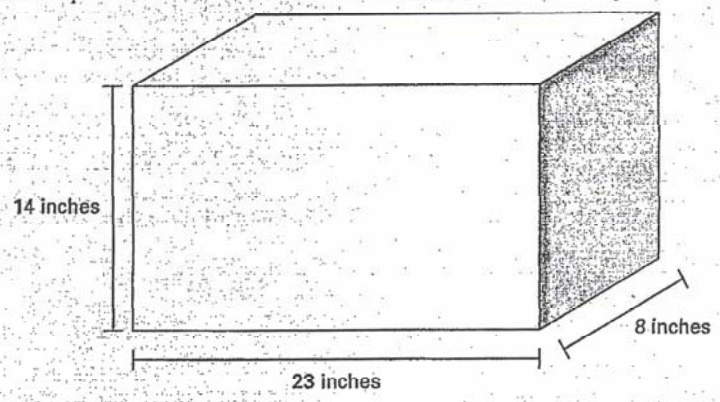
2

What is the **volume** of the space that Phil filled with sand? 1288 in^3

Show your work or explain how you found your answer.

The formula for volume is L*W*h. (23*8*14) Following this formula, I got 2576 in^3. Since he only filled $\frac{1}{2}$ the container, I divided by 2 to get 1288 in^3

S3B Phil made sand art decorations. He had a rectangular container that he filled $\frac{1}{2}$ way full of sand. The picture shows the dimensions of the container.



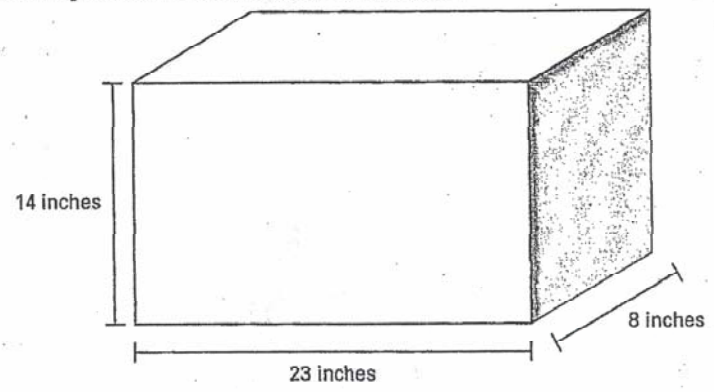
What is the **volume** of the space that Phil filled with sand? 1,288

Show your work or explain how you found your answer.

I got 1,288 because it was halfway full so its 7 inches high than I multiplied 7 · 23, 8 and got 1,288.

2

S3C Phil made sand art decorations. He had a rectangular container that he filled $\frac{1}{2}$ way full of sand. The picture shows the dimensions of the container.



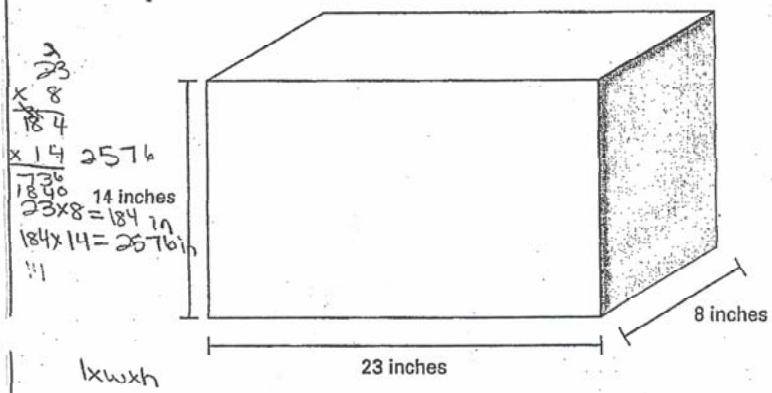
What is the **volume** of the space that Phil filled with sand? 1,288 in.

Show your work or explain how you found your answer.

14" · 23" · 8" = 2,576" ÷ 2 = 1,288"

2

S3D Phil made sand art decorations. He had a rectangular container that he filled $\frac{1}{2}$ way full of sand. The picture shows the dimensions of the container.



23 x 8 = 184 in
184 x 14 = 2576 in

lxwxh

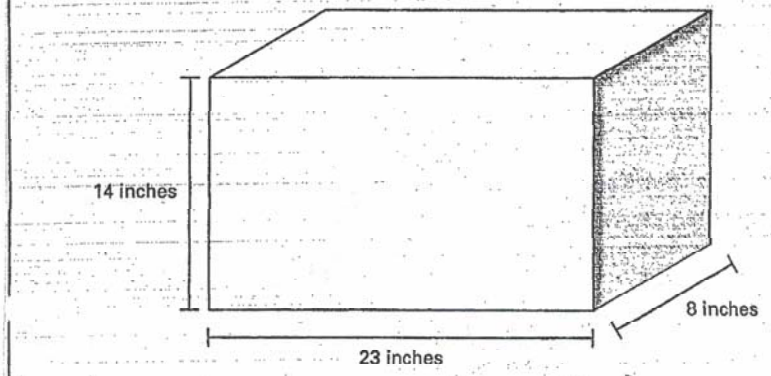
What is the **volume** of the space that Phil filled with sand? 2576 inches

Show your work or explain how you found your answer.

You multiply the length, which is 23 in, by the width, which is 8 in, and then by the height which is 14 in. then you will get 2576 inches.

1

S3E Phil made sand art decorations. He had a rectangular container that he filled $\frac{1}{2}$ way full of sand. The picture shows the dimensions of the container.

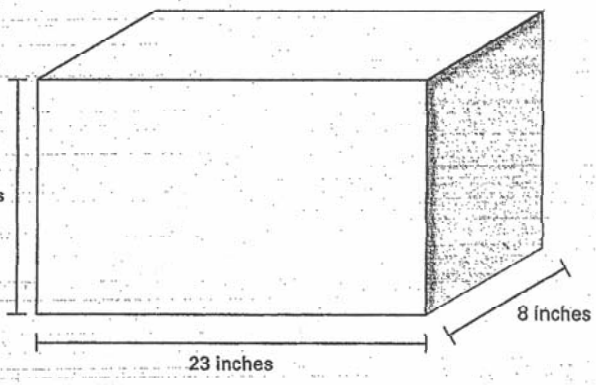


What is the **volume** of the space that Phil filled with sand? 1288

Show your work or explain how you found your answer.

1

S3F Phil made sand art decorations. He had a rectangular container that he filled $\frac{1}{2}$ way full of sand. The picture shows the dimensions of the container.



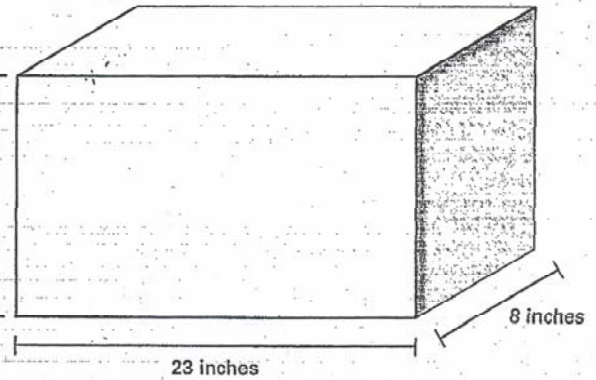
1

What is the **volume** of the space that Phil filled with sand? 5152 in^2

Show your work or explain how you found your answer.

14 x 23 x 8 = 2576 x 2 = 5152

S3G Phil made sand art decorations. He had a rectangular container that he filled $\frac{1}{2}$ way full of sand. The picture shows the dimensions of the container.



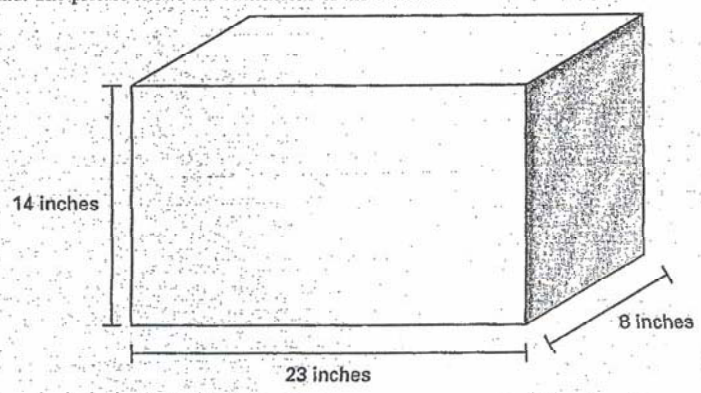
0

What is the **volume** of the space that Phil filled with sand? 45 inches

Show your work or explain how you found your answer.

I added all 5 numbers together and got 45 as my answer. :)

S3H Phil made sand art decorations. He had a rectangular container that he filled $\frac{1}{2}$ way full of sand. The picture shows the dimensions of the container.



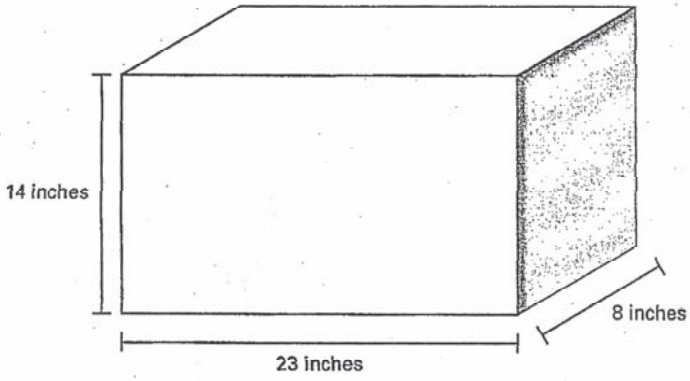
0

What is the **volume** of the space that Phil filled with sand? 7inches

Show your work or explain how you found your answer.

14÷2=7 1/2 of the box is filled with sand and the height of the box is 14 inches; so to get the real one I divide the number of inches by 2 and you get 7

S3I Phil made sand art decorations. He had a rectangular container that he filled $\frac{1}{2}$ way full of sand. The picture shows the dimensions of the container.



0

What is the **volume** of the space that Phil filled with sand? 215 sqft

Show your work or explain how you found your answer.

Multiplied 14 x 23 x 8. Divided by 12.

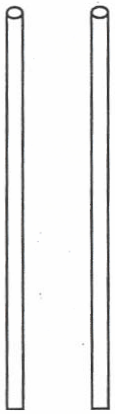
16. Customary and Metric Measures - MC

Eli's car weighs 3,350 pounds. How many **tons** does the car weigh?

- ○ 0.1675
- ○ 0.675
- ◉ 1.675
- ○ 16.75

17. Geometric Shapes and Properties - MC

The picture below shows two flagpoles.

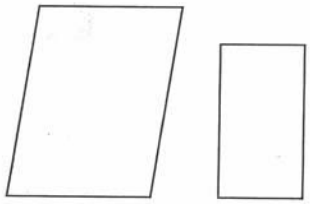


These flagpoles appear to create what kind of lines?

- ◉ **Parallel**
- ○ **Perpendicular**
- ○ **Intersecting**
- ○ **Obtuse**

18. Spatial Relationships - OE

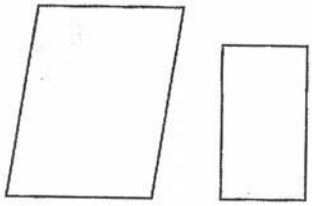
S-7 Barry traced the outline of two different floor tiles. The pictures below show his outlines.



Do the tiles appear to be **similar**?_____

Explain how you could tell for sure whether or not they are **similar**.

S7A Barry traced the outline of two different floor tiles. The pictures below show his outlines.



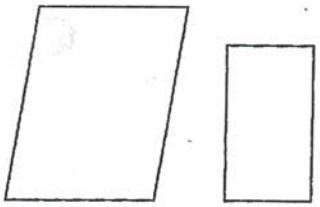
Do the tiles appear to be **similar**? No

Explain how you could tell for sure whether or not they are **similar**.

They are not similar because they aren't the same shape. One has 90° angles and the other doesn't. If two shapes are similar, the shape is the same but the size is different.

2

S7B Barry traced the outline of two different floor tiles. The pictures below show his outlines.



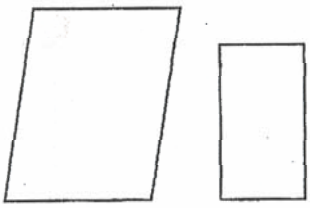
Do the tiles appear to be **similar**? NO

2

Explain how you could tell for sure whether or not they are **similar**.

I could tell that they aren't similar because one figure has 4 right angles and the other figure has none.

S7C Barry traced the outline of two different floor tiles. The pictures below show his outlines.



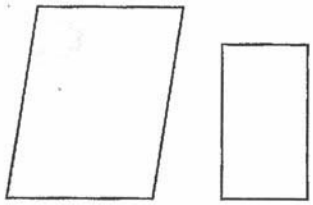
Do the tiles appear to be **similar**? no

2

Explain how you could tell for sure whether or not they are **similar**.

Similar figures would have the same angle degree. however, these 2 pictures don't have the same angle so they are not similar.

S7D Barry traced the outline of two different floor tiles. The pictures below show his outlines.



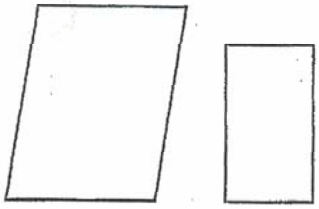
Do the tiles appear to be **similar**? No

1

Explain how you could tell for sure whether or not they are **similar**.

The bigger tile is somewhat slanted to the right unlike the smaller tile which is straight.

S7E Barry traced the outline of two different floor tiles. The pictures below show his outlines.



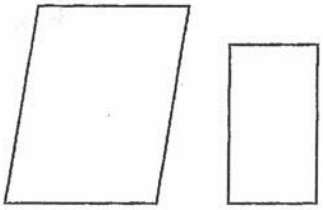
Do the tiles appear to be **similar**? No

1

Explain how you could tell for sure whether or not they are **similar**.

No they are not similar because the big one is a parallelogram and the smaller shape is a rectangle.

S7F Barry traced the outline of two different floor tiles. The pictures below show his outlines.



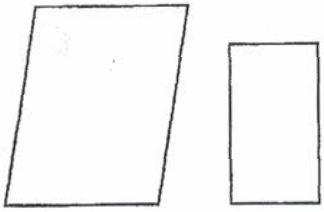
Do the tiles appear to be **similar**? no

Explain how you could tell for sure whether or not they are **similar**.

They can't be because one is tilted

1

S7G Barry traced the outline of two different floor tiles. The pictures below show his outlines.



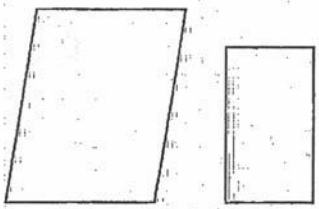
Do the tiles appear to be **similar**? yes

Explain how you could tell for sure whether or not they are **similar**.

they are similar because one has parrell and they both look like rectangles

0

S7H Barry traced the outline of two different floor tiles. The pictures below show his outlines.



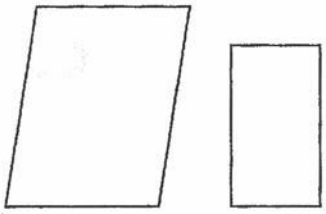
Do the tiles appear to be **similar**? NO

Explain how you could tell for sure whether or not they are **similar**.

One is bigger than the other

0

S7I Barry traced the outline of two different floor tiles. The pictures below show his outlines.



Do the tiles appear to be **similar**? yes

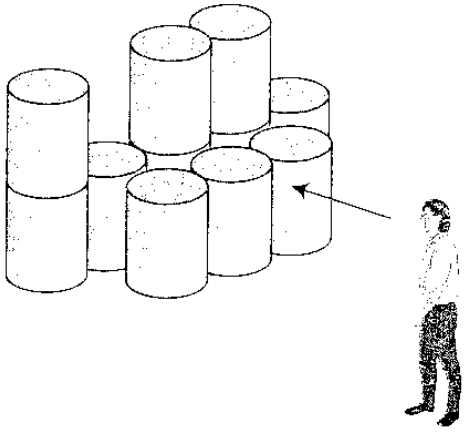
Explain how you could tell for sure whether or not they are **similar**.

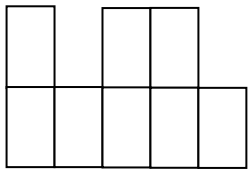
They are similar because it is definitely the same shape the lines are just at different angles.

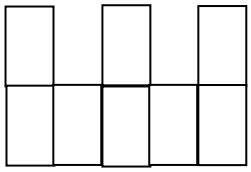
0

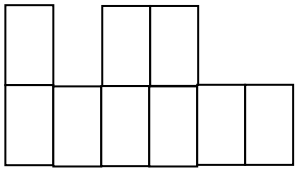
18. Spatial Relationships - MC

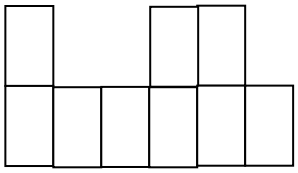
What view of the barrels is seen by the person in the picture?



◉ 

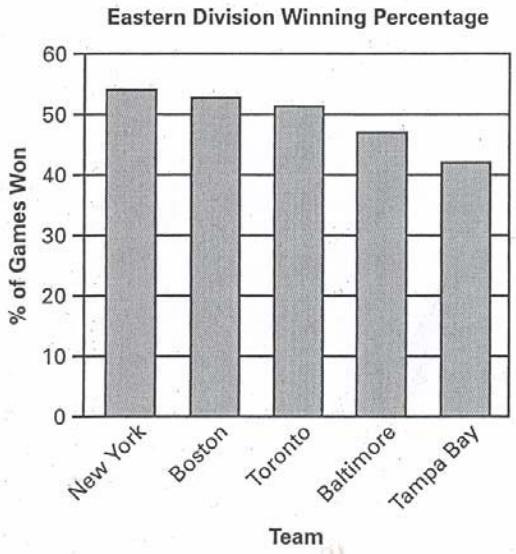
○ 

○ 

○ 

19. Tables, Graphs and Charts - MC

This graph shows the winning percentage during the 2000 Major League Baseball regular season of the Eastern Division of the American League.



The Chicago White Sox, in the Central Division, had a winning percentage of 59%. About how much **greater** was their winning percentage than the percentage of the Boston Red Sox?

- ○ 2%
- ◉ 6%
- ○ 13%
- ○ 16%

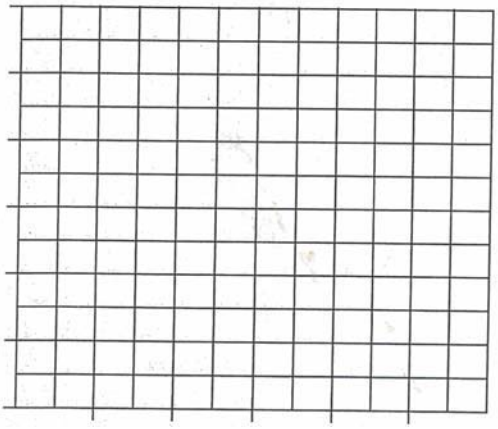
19. Tables, Graphs and Charts - OE

The table shows the number of years ago several kinds of clothing were first worn.

Early Kinds of Clothing

Kind	Number of Years Ago
Belts and Trousers	30,000
Knitted Skirts	20,000
Cotton	6,500
Silk	5,000
Buttoned Garments	13,000

Complete a **bar** graph to show the same information.

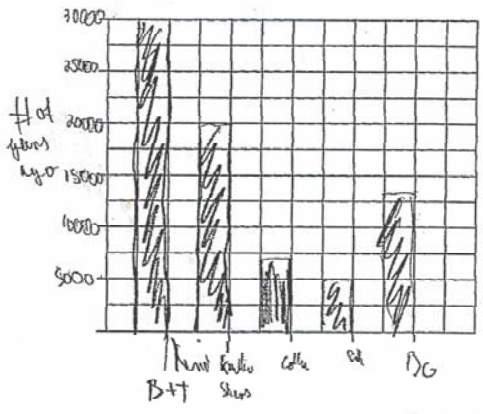


S8A The table shows the number of years ago several kinds of clothing were first worn.

Early Kinds of Clothing

Kind	Number of Years Ago
Belts and Trousers	30,000
Knitted Skirts	20,000
Cotton	6,500
Silk	5,000
Buttoned Garments	13,000

Complete a **bar** graph to show the same information.



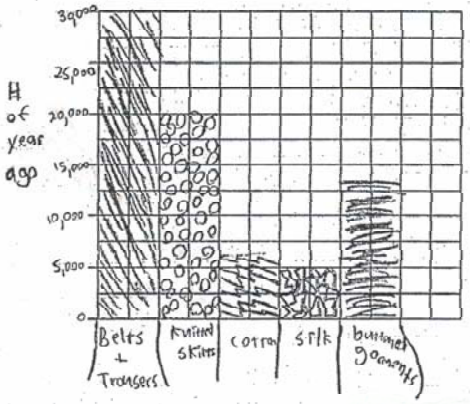
2

S8B The table shows the number of years ago several kinds of clothing were first worn.

Early Kinds of Clothing

Kind	Number of Years Ago
Belts and Trousers	30,000
Knitted Skirts	20,000
Cotton	6,500
Silk	5,000
Buttoned Garments	13,000

Complete a bar graph to show the same information.



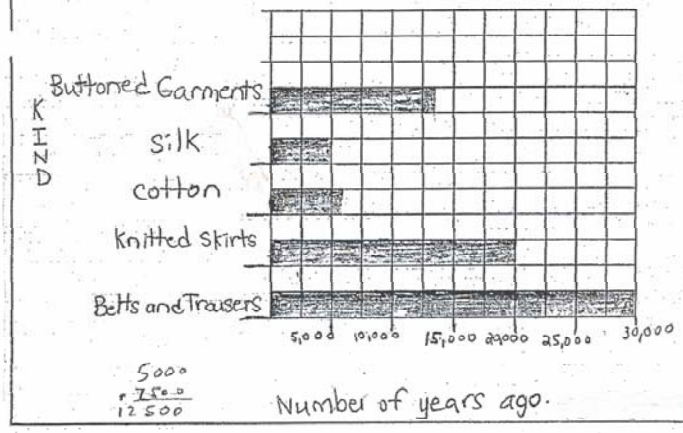
2

S8C The table shows the number of years ago several kinds of clothing were first worn.

Early Kinds of Clothing

Kind	Number of Years Ago
Belts and Trousers	30,000
Knitted Skirts	20,000
Cotton	6,500
Silk	5,000
Buttoned Garments	13,000

Complete a bar graph to show the same information.



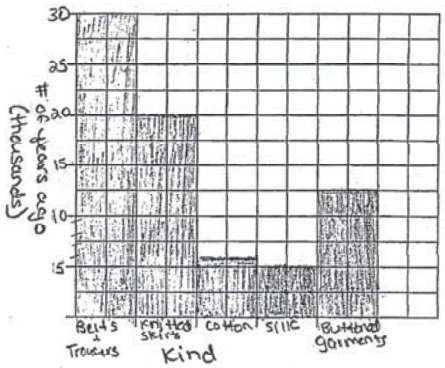
2

S8D The table shows the number of years ago several kinds of clothing were first worn.

Early Kinds of Clothing

Kind	Number of Years Ago
Belts and Trousers	30,000
Knitted Skirts	20,000
Cotton	6,500
Silk	5,000
Buttoned Garments	13,000

Complete a **bar** graph to show the same information.



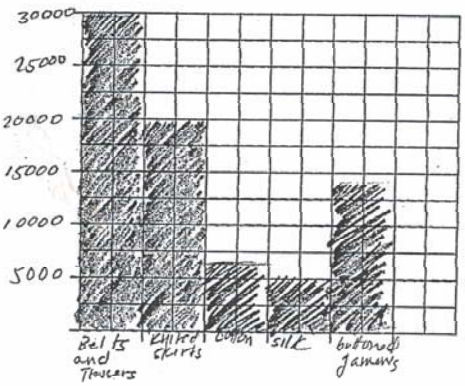
1

S8E The table shows the number of years ago several kinds of clothing were first worn.

Early Kinds of Clothing

	Kind	Number of Years Ago
A	Belts and Trousers	30,000
B	Knitted Skirts	20,000
C	Cotton	6,500
D	Silk	5,000
E	Buttoned Garments	13,000

Complete a **bar** graph to show the same information.



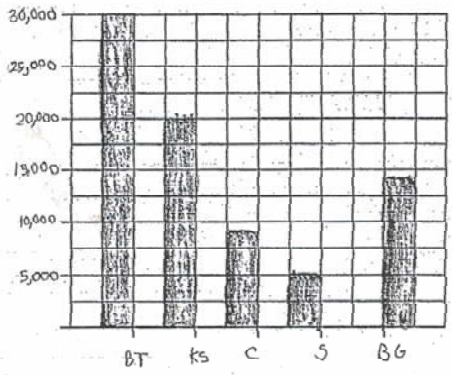
1

S8F The table shows the number of years ago several kinds of clothing were first worn.

Early Kinds of Clothing

Kind	Number of Years Ago
Belts and Trousers	30,000
Knitted Skirts	20,000
Cotton	6,500
Silk	5,000
Buttoned Garments	13,000

Complete a bar graph to show the same information.



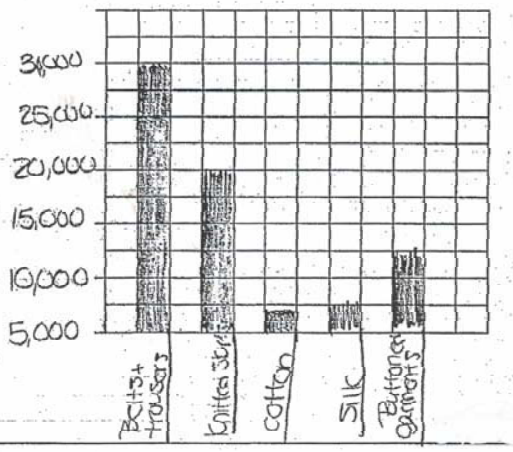
1

S8G The table shows the number of years ago several kinds of clothing were first worn.

Early Kinds of Clothing

Kind	Number of Years Ago
Belts and Trousers	30,000
Knitted Skirts	20,000
Cotton	6,500
Silk	5,000
Buttoned Garments	13,000

Complete a bar graph to show the same information.



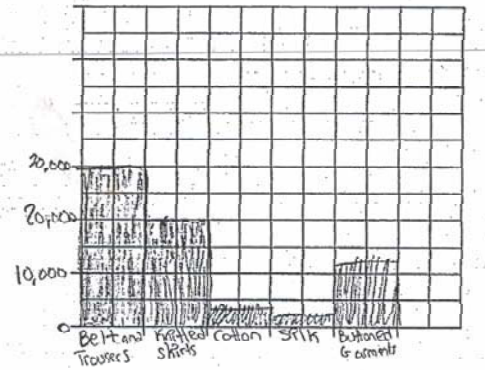
0

S8H The table shows the number of years ago several kinds of clothing were first worn.

Early Kinds of Clothing

Kind	Number of Years Ago
Belts and Trousers	30,000
Knitted Skirts	20,000
Cotton	6,500
Silk	5,000
Buttoned Garments	13,000

Complete a **bar** graph to show the same information.



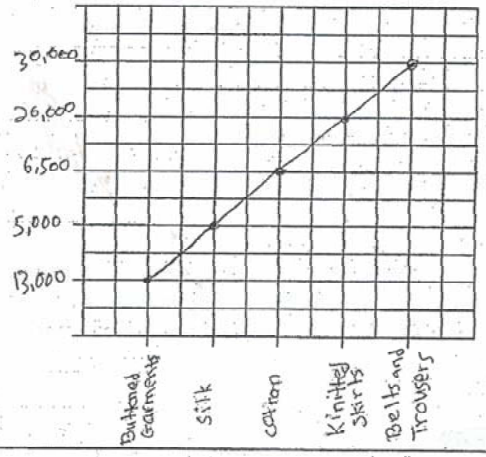
0

S-8I The table shows the number of years ago several kinds of clothing were first worn.

Early Kinds of Clothing

Kind	Number of Years Ago
Belts and Trousers	30,000
Knitted Skirts	20,000
Cotton	6,500
Silk	5,000
Buttoned Garments	13,000

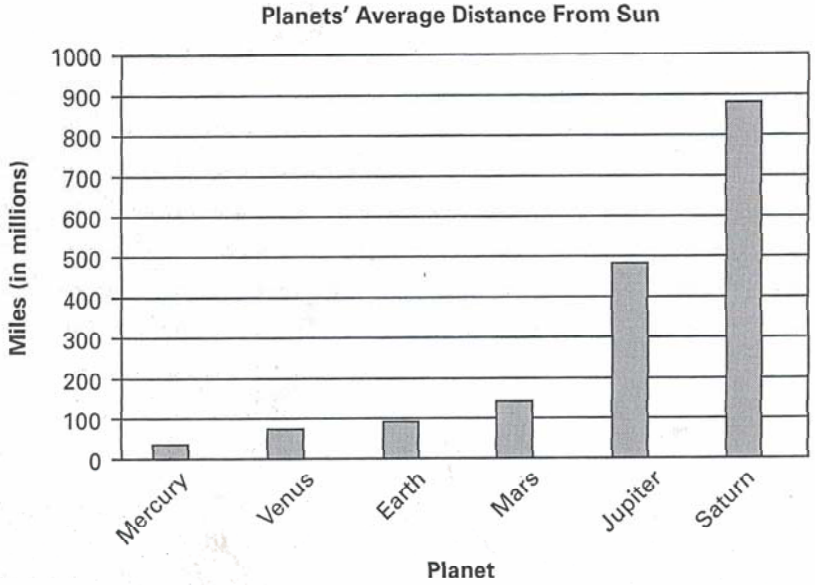
Complete a **bar** graph to show the same information.



0

20. Statistics and Data Analysis - OE

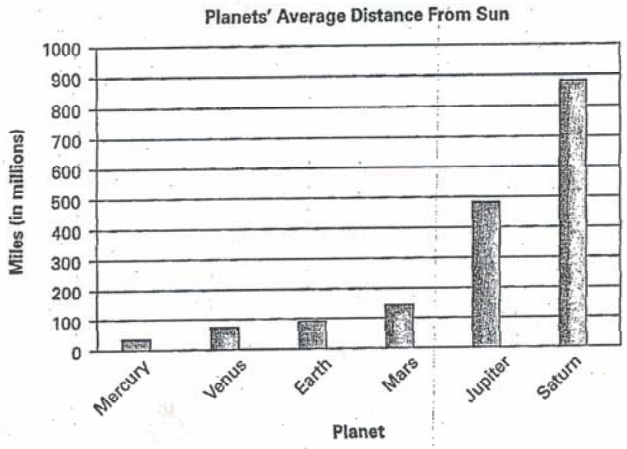
S-4 The graph shows six planets and the number of miles each planet is from the Sun.



Michelle claims that Jupiter is about 3.4 times farther than Mars is from the Sun.

Based on the graph, is Michelle's claim **reasonable**? Write an explanation to show why you agree or why you do not agree with Michelle's claim.

S4A The graph shows six planets and the number of miles each planet is from the Sun.



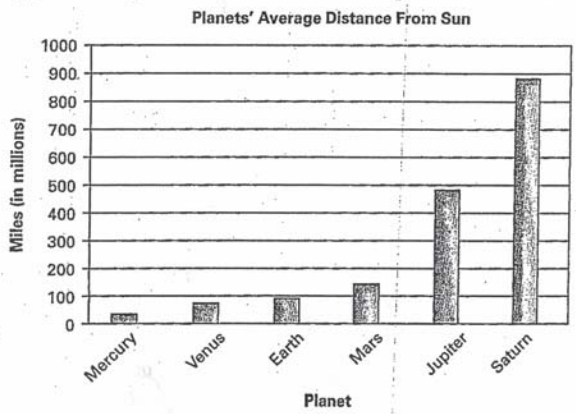
Michelle claims that Jupiter is about 3.4 times farther than Mars is from the Sun.

Based on the graph, is Michelle's claim **reasonable**? Write an explanation to show why you agree or why you do not agree with Michelle's claim.

Yes, Mars is about 150 million miles away. Multiply that by 3.4 and you would get 510. Jupiter looks about 490, so her explination is not bad.

2

S4B The graph shows six planets and the number of miles each planet is from the Sun.



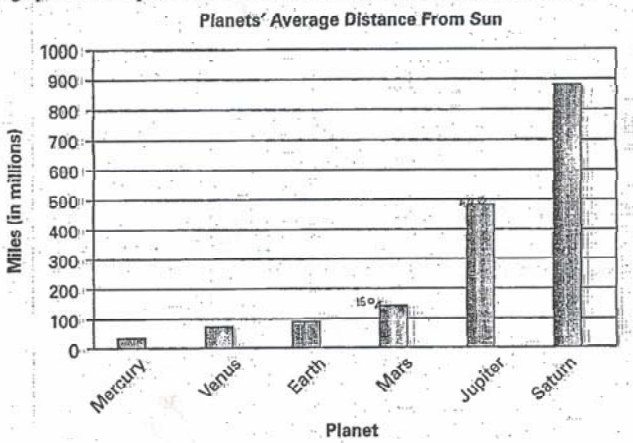
2

Michelle claims that Jupiter is about **3.4** times farther than Mars is from the Sun.

Based on the graph, is Michelle's claim **reasonable**? Write an explanation to show why you agree or why you do not agree with Michelle's claim.

Yes, It is reasonable. I you divide 500 by 150 you get 3.33. That is well within range.

S4C The graph shows six planets and the number of miles each planet is from the Sun.



1

Michelle claims that Jupiter is about 3.4 times farther than Mars is from the Sun.

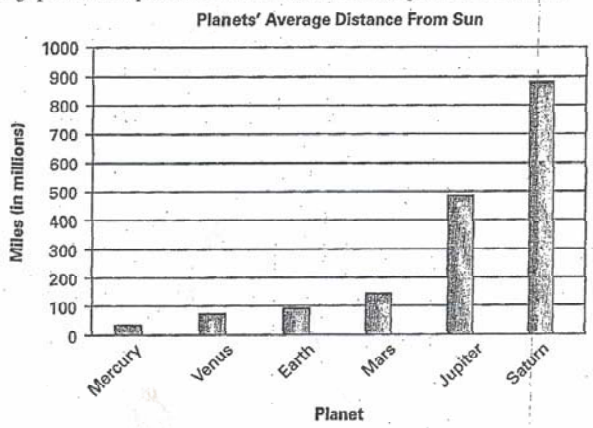
Based on the graph, is Michelle's claim **reasonable**? Write an explanation to show why you agree or why you do not agree with Michelle's claim.

No because Marses distance from earth is about 150 miles(in millions) and jupiters about 490 (miles in millions)

490 / 150 = 3.26

3.4 ≠ 3.25

S4D The graph shows six planets and the number of miles each planet is from the Sun.



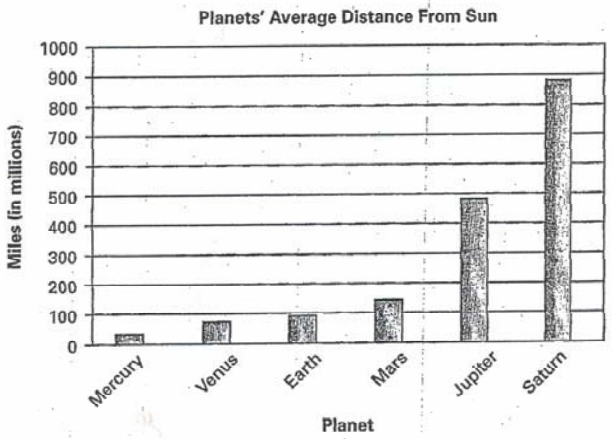
1

Michelle claims that Jupiter is about 3.4 times farther than Mars is from the Sun.

Based on the graph, is Michelle's claim **reasonable**? Write an explanation to show why you agree or why you do not agree with Michelle's claim.

Michelle's claim is not reasonable because if you find Mars at 140 m. (in millions) and multiply it by 3.4, you get a lesser amount than the picture leads you to imagine.

S4E The graph shows six planets and the number of miles each planet is from the Sun.



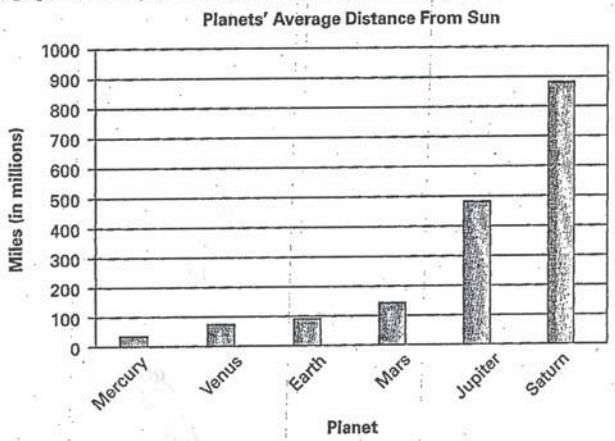
1

Michelle claims that Jupiter is about 3.4 times farther than Mars is from the Sun.

Based on the graph, is Michelle's claim **reasonable**? Write an explanation to show why you agree or why you do not agree with Michelle's claim.

No because 3.4(150) is 510 and Jupiter is about 890 miles away from the sun

S4F The graph shows six planets and the number of miles each planet is from the Sun.



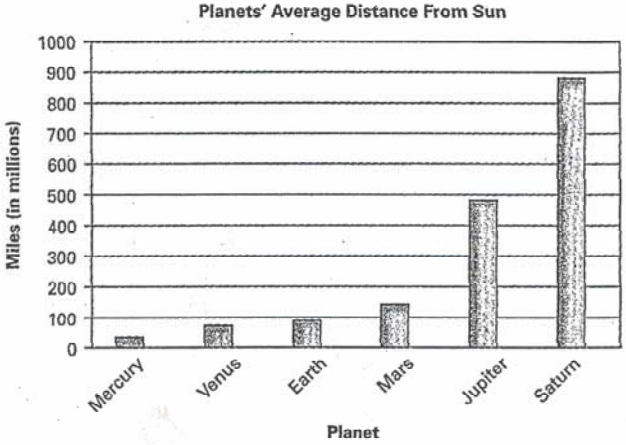
1

Michelle claims that Jupiter is about 3.4 times farther than Mars is from the Sun.

Based on the graph, is Michelle's claim **reasonable**? Write an explanation to show why you agree or why you do not agree with Michelle's claim.

No, Michelle's claim is not reasonable because if Mercury's distance from the sun is about 40 million miles, and Jupiter's is about 490 million miles, then you know that 3.4 times 40 is not 490, but instead 136.

S4G The graph shows six planets and the number of miles each planet is from the Sun.



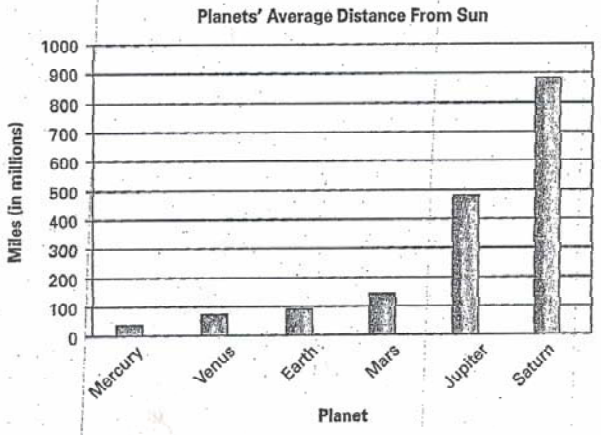
0

Michelle claims that Jupiter is about 3.4 times farther than Mars is from the Sun.

Based on the graph, is Michelle's claim **reasonable**? Write an explanation to show why you agree or why you do not agree with Michelle's claim.

I don't think that michelle's claim was reasonable because you would have to multiply Jupiter by 3.4 and Mars by 3.4 and you would have to divide the 2 totals so it wouldn't be correct.

S4H The graph shows six planets and the number of miles each planet is from the Sun.



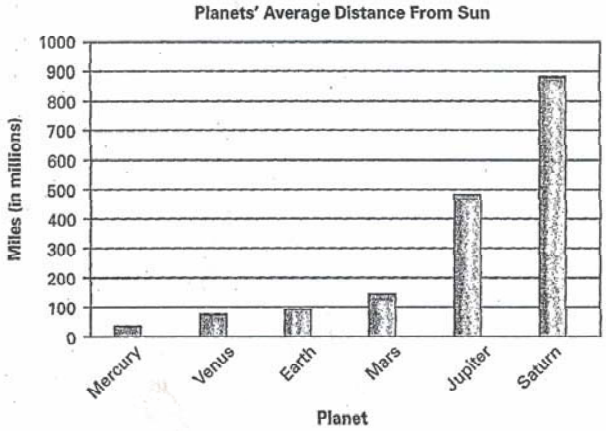
0

Michelle claims that Jupiter is about 3.4 times farther than Mars is from the Sun.

Based on the graph, is Michelle's claim **reasonable**? Write an explanation to show why you agree or why you do not agree with Michelle's claim.

I don't agree with her claim because it is to low. She needs to go higher is 3.4 decimal.

S4I The graph shows six planets and the number of miles each planet is from the Sun.



0

Michelle claims that Jupiter is about 3.4 times farther than Mars is from the Sun.

Based on the graph, is Michelle's claim **reasonable**? Write an explanation to show why you agree or why you do not agree with Michelle's claim.

I agree it closer.

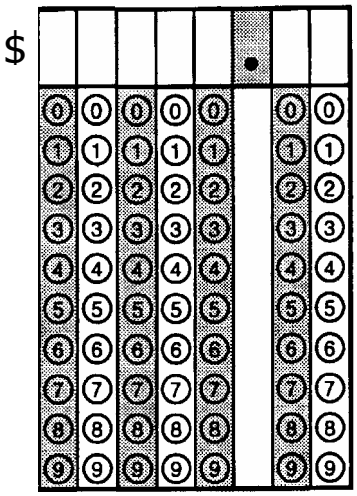
20. Statistics and Data Analysis - GR

Louis works at a supermarket. His earnings from his last four paychecks are shown below.

$187.53 $168.76

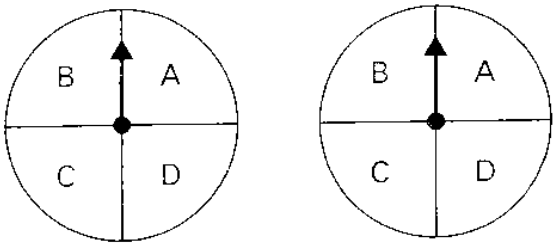
$205.64 $252.71

What is the **mean** of Louis' earnings from these four paychecks?



21. Probability - MC

The spinners below are each divided into 4 equal sections



If each spinner is spun once, what is the probability that the arrows will **both** land on A?

○ $\frac{1}{4}$ ○ $\frac{2}{16}$

⊙ $\frac{1}{16}$ ○ $\frac{2}{4}$

21. Probability - OE

S-4 Bob was playing a game with his best friend, Jose. Jose would toss 2 coins at the same time. Jose would get a point each time the coins came up with one heads and one tails. Bob would get a point each time the coins came up either both heads or both tails.

Is this game fair? _____

Explain why or why not using the outcomes of tossing 2 coins.

S4A Bob was playing a game with his best friend, Jose. Jose would toss 2 coins at the same time. Jose would get a point each time the coins came up with one heads and one tails. Bob would get a point each time the coins came up either both heads or both tails.

Is this game fair? Yes

Explain why or why not using the outcomes of tossing 2 coins.

Yes, I think that the game is fair because it is a 50% chance that the coins will land on 1 heads and 1 tails or both heads and both tails.

2

S4B Bob was playing a game with his best friend, Jose. Jose would toss 2 coins at the same time. Jose would get a point each time the coins came up with one heads and one tails. Bob would get a point each time the coins came up either both heads or both tails.

Is this game fair? Yes

Explain why or why not using the outcomes of tossing 2 coins.

If Bob get two heads or two tails, It is two ways of winning.
If Jose gets 1 heads, 1 tails, 1 trils, 1 heads. It is two ways of winning.

2

S4C Bob was playing a game with his best friend, Jose. Jose would toss 2 coins at the same time. Jose would get a point each time the coins came up with one heads and one tails. Bob would get a point each time the coins came up either both heads or both tails.

Is this game fair? Yes

Explain why or why not using the outcomes of tossing 2 coins.

You can have H,T; T,H; H,H; T,T both men have the same opportunity to get a point

2

S4D Bob was playing a game with his best friend, Jose. Jose would toss 2 coins at the same time. Jose would get a point each time the coins came up with one heads and one tails. Bob would get a point each time the coins came up either both heads or both tails.

Is this game fair? yes

Explain why or why not using the outcomes of tossing 2 coins.

It is fair because Jose has a 50% chance of winning and so does Bob.

1

S4E Bob was playing a game with his best friend, Jose. Jose would toss 2 coins at the same time. Jose would get a point each time the coins came up with one heads and one tails. Bob would get a point each time the coins came up either both heads or both tails.

Is this game fair? yes

Explain why or why not using the outcomes of tossing 2 coins.

I say it is fair because since there are 2 coins, one can land on heads and the other one can land on tails very easily. Also both of the coins could land the same way meaning both on heads or both on tails.

1

S4F Bob was playing a game with his best friend, Jose. Jose would toss 2 coins at the same time. Jose would get a point each time the coins came up with one heads and one tails. Bob would get a point each time the coins came up either both heads or both tails.

Is this game fair? YES

Explain why or why not using the outcomes of tossing 2 coins.

They both have a 50/50 chance

1

S4G Bob was playing a game with his best friend, Jose. Jose would toss 2 coins at the same time. Jose would get a point each time the coins came up with one heads and one tails. Bob would get a point each time the coins came up either both heads or both tails.

Is this game fair? No

Explain why or why not using the outcomes of tossing 2 coins.

Jose does not have as good a chance of winning as Bob. Bob gets the point 2/3 of the time and Jose gets the point 1/3 of the time.

0

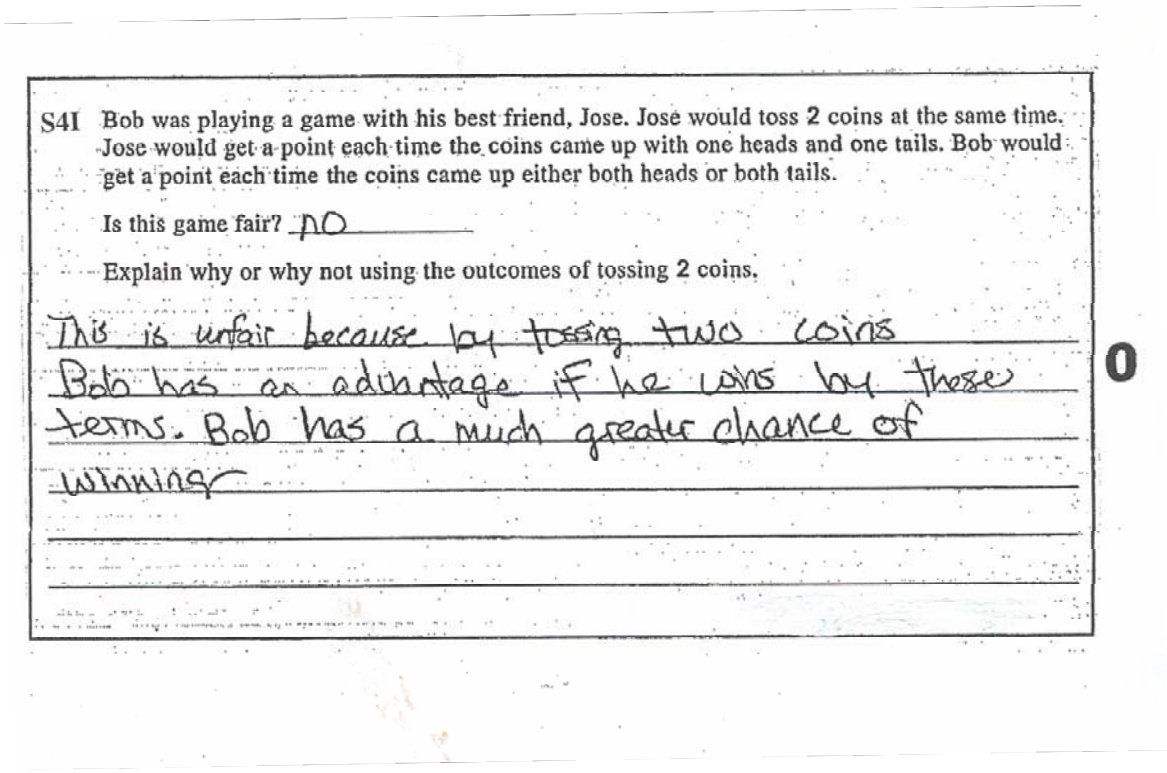
S4H Bob was playing a game with his best friend, Jose. Jose would toss 2 coins at the same time. Jose would get a point each time the coins came up with one heads and one tails. Bob would get a point each time the coins came up either both heads or both tails.

Is this game fair? yes

Explain why or why not using the outcomes of tossing 2 coins.

This would be fair because the coins will either be one or the other, no one really knows.

0



S4I Bob was playing a game with his best friend, Jose. Jose would toss 2 coins at the same time. Jose would get a point each time the coins came up with one heads and one tails. Bob would get a point each time the coins came up either both heads or both tails.

Is this game fair? NO

Explain why or why not using the outcomes of tossing 2 coins.

This is unfair because by tossing two coins Bob has an advantage if he uses by these terms. Bob has a much greater chance of winning

0

22. Patterns - MC

The numbers below follow a pattern.

12, 24, 48, 96, ___, ___, ___, ___, ___, ?

What is the 10th term in the pattern?

- ◉ 6144
- ○ 5744
- ○ 3072
- ○ 192

22. Patterns - OE

S-3 These numbers follow a pattern.

610, 510, 420, ___?___, ___?___, 210, 160

Which numbers are missing? _____

Explain why you think they are the missing numbers.

S3A These numbers follow a pattern.

610, 510, 420, ___?___, ___?___, 210, 160

Which numbers are missing? 340, 270

Explain why you think they are the missing numbers.

I subtracted 510 from 610 to get 100. Then I subtracted 420 from 510 to get 90. I realized the pattern is subtract 10 less than the number you subtracted before. So from 420 I subtracted 80 to get 340, and subtracted 70 from 340 to get 270. From 270 I subtracted 60 and got 210, so I know my answer is correct

2

S3B These numbers follow a pattern.

610, 510, 420, ___?___, ___?___, 210, 160

Which numbers are missing? 340, 270

Explain why you think they are the missing numbers.

610 - 100 = 510 510 - 90 = 420 420 - 80 = 340 340 - 70 = 270
270 - 60 = 210 210 - 50 = 160

2

S3C These numbers follow a pattern.

610, 510, 420, ?, ?, 210, 160

100 90 80 70 60 50

Which numbers are missing? 340, 270

Explain why you think they are the missing numbers.

The pattern shows that the numbers are decreasing by 10.

2

S3D These numbers follow a pattern. 70 60 50

610, 510, 420, ?, ?, 210, 160

90 80 50

Which numbers are missing? 340, 270

Explain why you think they are the missing numbers.

I think they are the missing numbers because I figured out what the pattern was. and then did the work to get the two missing numbers. I subtracted 70 from 420, and the 60 from 340. then I checked it.

1

S3E These numbers follow a pattern.

610, 510, 420, ?, ?, 210, 160

Which numbers are missing? 330; 250

Explain why you think they are the missing numbers.

They are the missing numbers because when you subtract the first two numbers, they go by one hundred. when you subtract 510 and 420, it is going by nineties. Every time you subtract two, it goes off by ten.

1

S3F These numbers follow a pattern.

610, 510, 420, ?, ?, 210, 160

Which numbers are missing? 340, 270

Explain why you think they are the missing numbers.

Thats the way the pattern go.

1

S3G These numbers follow a pattern.

610, 510, 420, ?, ?, 210, 160

Which numbers are missing? 320, 310

Explain why you think they are the missing numbers.

I think these numbers are missing because all the hundreds are decreasing and the tens place repeats twice then goes to 10 or 20.

0

S3H These numbers follow a pattern. 310 240

610, 510, 420, ?, ?, 210, 160

10 20 40 60

Which numbers are missing? 310 240

Explain why you think they are the missing numbers.

because it looks like its Going 10 20 40 60 and theirs a 10 between both Numbers

0

S3I These numbers follow a pattern.

610, 510, 420, ___?___, ___?___, 210, 160

Which numbers are missing? 410, 320

Explain why you think they are the missing numbers.

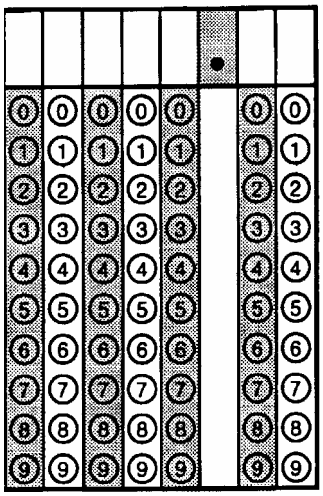
I went by 10's

0

23. Algebraic Concepts - GR

What is the value of x in this equation?

$$2x - 4.01 = 7.13$$



23. Algebraic Concepts - OE

S-6 Jenny has a collection of baseball and football cards. For every 5 baseball cards in the collection, there are 2 football cards.

If Jenny has a total of 133 cards in her collection, how many baseball cards does she have? _____

Show how you could use the table below to solve the problem.

Baseball	Football	Total
5	2	7

S6A Jenny has a collection of baseball and football cards. For every 5 baseball cards in the collection, there are 2 football cards.

If Jenny has a total of 133 cards in her collection, how many baseball cards does she have? 95

Show how you could use the table below to solve the problem.

Baseball	Football	Total
5	2	7
10	4	14
15	6	21
20	8	28
25	10	35
30	12	42
95	38	133

2

S6B Jenny has a collection of baseball and football cards. For every 5 baseball cards in the collection, there are 2 football cards.

If Jenny has a total of 133 cards in her collection, how many baseball cards does she have? 95

Show how you could use the table below to solve the problem.

133

Baseball	Football	Total
19 × 5	19 × 2	7
95	+ 38	= 133
		÷ 7
		19

2

S6C Jenny has a collection of baseball and football cards. For every 5 baseball cards in the collection, there are 2 football cards.

If Jenny has a total of 133 cards in her collection, how many baseball cards does she have? 95

Show how you could use the table below to solve the problem.

Baseball	Football	Total
5	2	7
50	20	70
100	40	140
95	38	133

2

S6D Jenny has a collection of baseball and football cards. For every 5 baseball cards in the collection, there are 2 football cards.

If Jenny has a total of 133 cards in her collection, how many baseball cards does she have? 110

Show how you could use the table below to solve the problem.

Baseball	Football	Total
5	2	7
10	4	14
15	6	21
20	8	28
25	10	35
30	12	42

1

S6E Jenny has a collection of baseball and football cards. For every 5 baseball cards in the collection, there are 2 football cards.

If Jenny has a total of 133 cards in her collection, how many baseball cards does she have? 95

Show how you could use the table below to solve the problem.

Baseball	Football	Total
5	2	7
95	38	133

1

S6F Jenny has a collection of baseball and football cards. For every 5 baseball cards in the collection, there are 2 football cards.

If Jenny has a total of 133 cards in her collection, how many baseball cards does she have? 95 baseball cards

Show how you could use the table below to solve the problem.

Baseball	Football	Total
5	2	7

1

S6G Jenny has a collection of baseball and football cards. For every 5 baseball cards in the collection, there are 2 football cards.

If Jenny has a total of 133 cards in her collection, how many baseball cards does she have? 7

Show how you could use the table below to solve the problem.

Baseball	Football	Total
5	2	7

0

S6H Jenny has a collection of baseball and football cards. For every 5 baseball cards in the collection, there are 2 football cards.

If Jenny has a total of 133 cards in her collection, how many baseball cards does she have? 126

Show how you could use the table below to solve the problem.

Baseball	Football	Total
5	2	7
5	2	7
5	2	7
5	2	7
5	2	7
5	2	7

0

S6I Jenny has a collection of baseball and football cards. For every 5 baseball cards in the collection, there are 2 football cards.

If Jenny has a total of 133 cards in her collection, how many baseball cards does she have? _____

Show how you could use the table below to solve the problem.

Baseball	Football	Total
5	2	7
75	58	133
85	48	133
95	38	133
105	28	133
115	18	133

0

23. Algebraic Concepts - MC

Wendy was a painter. She paid $14.00 for each gallon of paint she bought. She also bought a new brush for $4.99. If x represents the number of gallons of paint she bought, which expression shows the amount of money she spent on paint and the brush?

- ○ $14 - 4.99x$
- ○ $14x - 4.99$
- ○ $14 + 4.99x$
- ◉ $14x + 4.99$

24. Classification and Logical Reasoning - MC

The following are clues to Carmen's age.

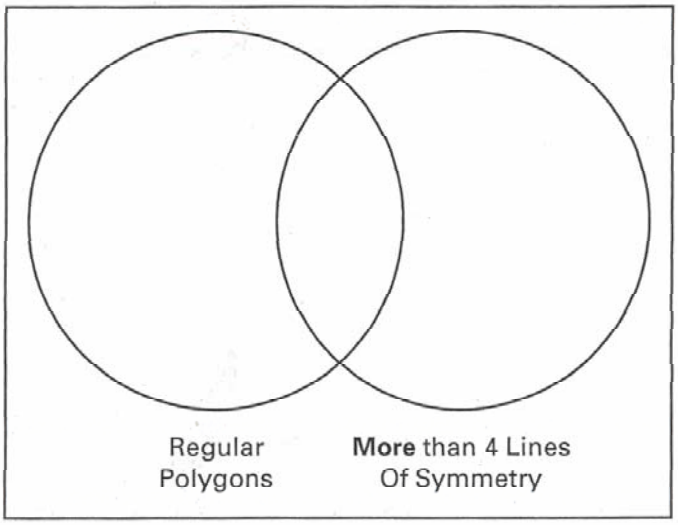
- It is an odd number greater than 10 but less than 22.
- It is **not** a prime number.
- It is **not** divisible by 5.

What is Carmen's age?

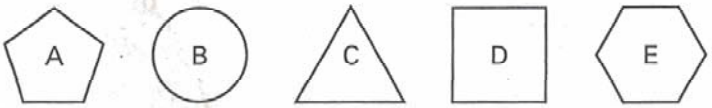
- ○ 15
- ○ 17
- ◉ 21
- ○ 23

24. Classification and Logical Reasoning - OE

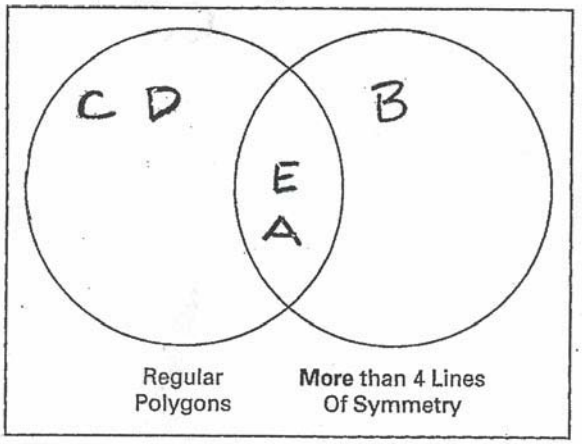
S-5 Use the Venn diagram to help you sort shapes.



Write the **letter** of each shape below into the appropriate set in the Venn diagram.



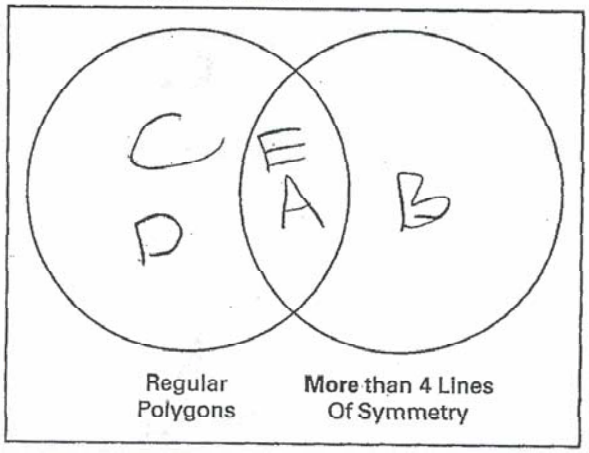
S5A Use the Venn diagram to help you sort shapes.



Write the **letter** of each shape below into the appropriate set in the Venn diagram.

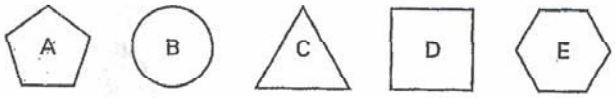
2

S5B Use the Venn diagram to help you sort shapes.

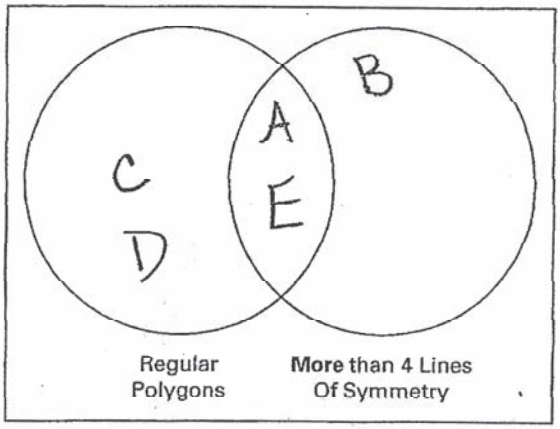


2

Write the **letter** of each shape below into the appropriate set in the Venn diagram.



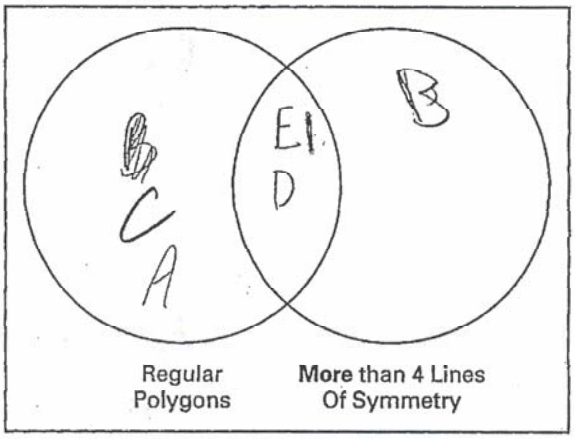
S5C Use the Venn diagram to help you sort shapes.



2

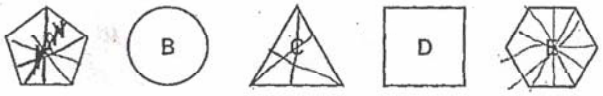
Write the **letter** of each shape below into the appropriate set in the Venn diagram.

S5D Use the Venn diagram to help you sort shapes.

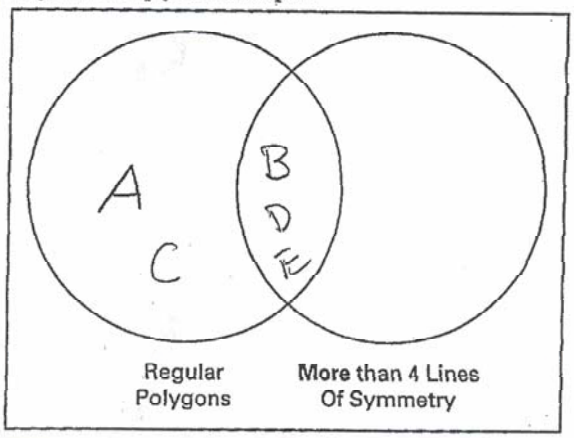


1

Write the **letter** of each shape below into the appropriate set in the Venn diagram.



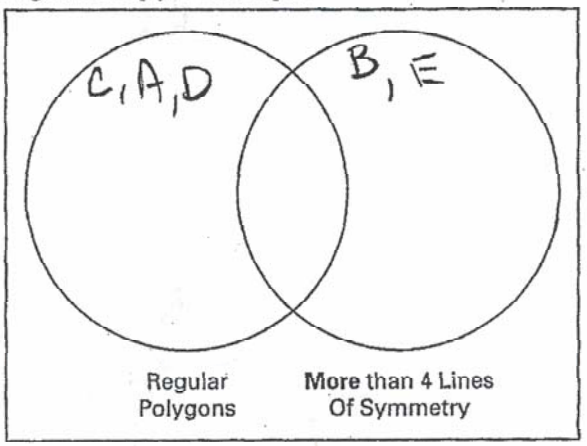
S5E Use the Venn diagram to help you sort shapes.



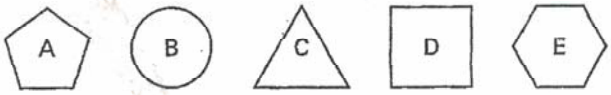
1

Write the **letter** of each shape below into the appropriate set in the Venn diagram.

S5F Use the Venn diagram to help you sort shapes.

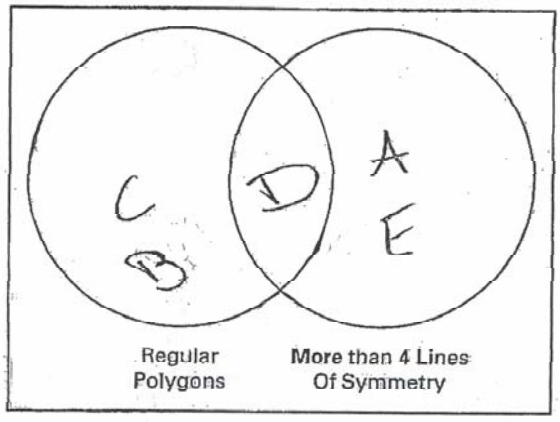


Write the **letter** of each shape below into the appropriate set in the Venn diagram.



1

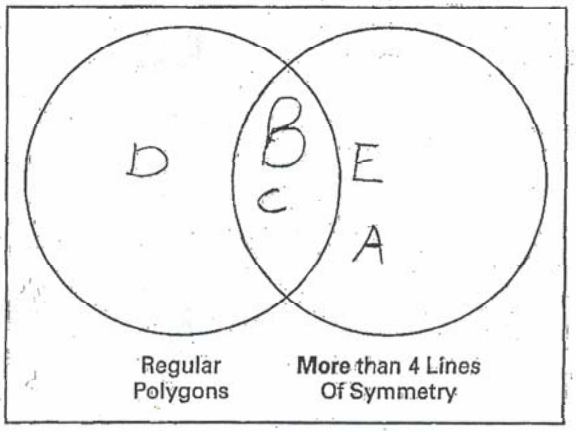
S5G Use the Venn diagram to help you sort shapes.



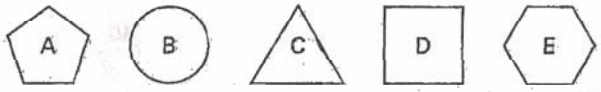
Write the **letter** of each shape below into the appropriate set in the Venn diagram.

0

S5H Use the Venn diagram to help you sort shapes.

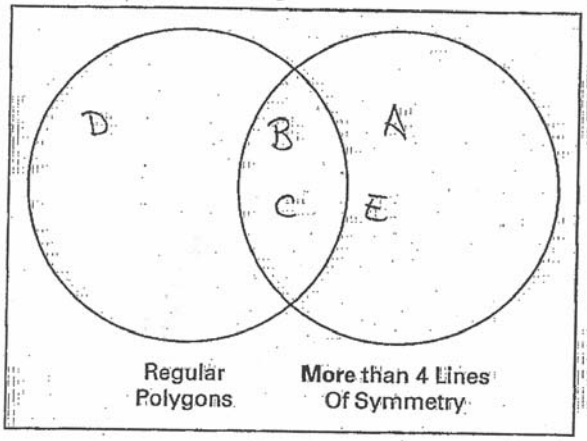


Write the **letter** of each shape below into the appropriate set in the Venn diagram.

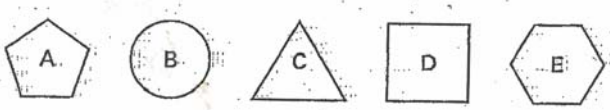


0

S5I Use the Venn diagram to help you sort shapes.



Write the **letter** of each shape below into the appropriate set in the Venn diagram.



0

25. Mathematical Applications

E-1 The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from

11 A.M. to 5 P.M.? _____

Show your work or explain how you found your answer.

E1A The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from

11 A.M. to 5 P.M.? 630

Show your work or explain how you found your answer.

4 rotations/minute × 3½ minutes = 14 rotations/3½ minutes

60 mins ÷ 8 mins per cycle = 7.5 cycles/hour

14 rotations/cycle × 7.5 cycles/hour = 105 rotations/hour

105 rotations/hour × 6 hours = 630 rotations in 6 hours

3

E1B The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from 11 A.M. to 5 P.M.? _____

Show your work or explain how you found your answer.

$3\frac{1}{2} \cdot 4 = 14$

rotates 14 times each ride

11am to 5 pm = 6 hours

6 hours = 360 minutes

$360 \div 8 = 45$

45 rides

$45 \cdot 14 = 630$

rotates 630 times

3

E1C The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from 11 A.M. to 5 P.M.? 630 rotations

Show your work or explain how you found your answer.

3

I first found how many hours from 11 A.M. to 5 P.M. Then I multiplied that by 60. I then divided that by 8 and then multiplied that by 14. Then I got my answer.

E1D The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from 11 A.M. to 5 P.M.? 735 rotations

Show your work or explain how you found your answer.

from 11 to 5 it is 7 hours

7 x 60 = 420 minutes

420 ÷ 8 = 52.5

52.5 ÷ 3 1/2 = 15

3 1/2

4 + 4 + 4 + 2 = 14

14 times every 8 minutes

420 ÷ 8 = 52.5

52.5 x 14 = 735

2

First I converted 11 to 5pm into hours and then multiplied that by 60 to get the # of minutes. Then I figured out how many times the carosel rotated in 3 1/2 minutes. Then I divided 420 by 8 and multiplied it by 14 because that's how many times it rotates every 8 minutes.

E1E The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from

11 A.M. to 5 P.M.? 180

Show your work or explain how you found your answer.

$8\overline{)360}$ $45(4) = 180$
45

2

E1F The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from 11 A.M. to 5 P.M.? 39 3/8 rotations

Show your work or explain how you found your answer.

① 11 to 5 is 6 hours ② $6 \times 60 = 360$ ③ $360 \div 8 = 45$

④ $45 \times 3\frac{1}{2} = 157\frac{1}{2}$ ⑤ $157\frac{1}{2} \div 4 = 39\frac{3}{8}$

2

E1G The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from 11 A.M. to 5 P.M.? 5040

Show your work or explain how you found your answer.

11:00 am

5: pm

hours minuts X60 360 minuts

$3\frac{1}{2}$ minus per ride
4 times around per minut
14 times around for $3\frac{1}{2}$ minuts

$3 \times 4 = 12$
$\frac{1}{2} \times 2 = 2$

11:— 12:— 1:— 2:— 3:— 4:— 5:

1

E1H The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from 11 A.M. to 5 P.M.? 224

Show your work or explain how you found your answer.

11am to 5pm = 6 hours

6 x 60min = 360 minutes ÷ 8 = 45

45 3.5 x 8 = 28

28 + 28 = 224

1

I converted the hours to minute and divided by the 8 min. cycle to get 45 that 3.5 x 8 = 28 + 28 = the # of rotation to open to close answer = 224

E1I The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from 11 A.M. to 5 P.M.? 51.4 times

Show your work or explain how you found your answer.

60 (min) / 8 (time to complete cycle) = 7.5 (proof) = 2.1 (pro of)
3½ or 7/2 (actual ride)
2.1 • 4 (rotations per min)
8.5
• 6 (# of hours it's going)
51.4 (answer)

1

I divided 60 by 8 then I divided 7.5 by 7/2. Then I multiplyed 2.1 times 4 and then 8.5 times 6 & got 51.4

E1J The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from 11 A.M. to 5 P.M.? _____

Show your work or explain how you found your answer. ((6hrs)

60
6
4|360 = 90

0

It could take 90 rotations

E1K The Bushnell Park Carousel in Hartford opens in early May and runs through October from 11 A.M. to 5 P.M. One cycle of the carousel consists of 3 stages: loading people, the actual ride, and unloading people. It takes about 8 minutes to complete one cycle. The actual ride on the carousel takes $3\frac{1}{2}$ minutes.

If the carousel rotates 4 times per minute, how many rotations could it make from 11 A.M. to 5 P.M.? 69

Show your work or explain how you found your answer.

$8 + 3.5 = 11.5$

$11.5 \times 6 = 69$

0

Connecticut Mastery Test – Fourth Generation
Mathematics Grade 8 Vocabulary List

About
Accurate
Acute angle
Add
Algebraic term
All together
A.M.
Angle (s)
Answer
Approximate
Arc
Area
Array
Arranged
Arrived at (as in determined)
Arrow
At least
Average
Axis
Bar graph
Between _ and _
Categories
Capacity
Celsius degree
Centimeter
Chance
Change (as in money)
Chart
Chord
Circle
Circle graph
Circular face
Circumference
Classify
Clock (analog and digital)
Closest to
Column (s)
Combine
Combination
Common attribute
Compare
Complementary angles
Conclusion
Cone
Congruent
Coordinates
Coordinate grid
Cube
Cubic (feet, meters, etc)
Cubic millimeter
Cup
Cylinder
Data
Day
Days of the week
Decimal
Degree (s)
Denominator
Density
Depth
Describe
Design
Determined
Diagram
Diameter
Different
Digit
Divide
Double Bar Graph
Double Line Graph
Dozen
Edge
Elapsed time
Elliptical base
Equal
Equation
Equilateral
Equilateral triangle
Equivalent
Estimate
Exactly
Explain
Exponents (positive & Negative)
Expression
Evaluate
Event
Exponent
Face
Factor
Fahrenheit Degrees
Fair
Farthest
Fewer, fewest
Fewer than
Figure (as in geometric figure)
Foot
Formulas
Fraction
Fractional part
Frequency table
Gallon
Geometric solid
Grams
Graph
Greatest
Grid (coordinate and dot paper)
Group
Grouped
Growing patterns
Half
Half-Inch
Height (s)
Hexagon
Highest
Hour
How many more
How many less
Hundred (s)
Hundredth
Improper fraction
Inch
In common
Input
Integers
Intersect (ion)
Interval
Irregular
Isosceles triangle
Kilogram
Kilometer
Larger/larger than
Least
Least Likely
Length
Less
Less than
Likely
Line of best fit
Line graph
Line of symmetry
Line plot
Line segment
Liter
Locate (d)
Long, longer, longest
Lowest
Mass
Mathematical thinking
Maximum
Mean
Measure
Measurement
Median
Meter
Midpoint
Mile
Milligram
Milliliter
Millimeter
Minimum
Minute
Missing
Mixed number
Mode
Month
More
More than
Most
Most likely
Multiple
Multiply
Nearest
Net (flat pattern)
No less
No more than
Number fact
Number line
Number sentence
Numerator
Obtuse angle
Obtuse triangle
Octagon
Odd number
One-dimensional
Ones
Open sentence
Operation
Order of Operations

Mathematics Grade 8 Vocabulary List (Continued)

Order (numbers)
Ordinal numbers (first, second, etc)
Ordered pair
Ounce
Outlier
Output
Parallel
Parallelogram
Pattern
Pentagon
Percent (% of 100)
Perfect square
Perfect cube
Perimeter
Perpendicular
Pictograph
Pint
P.M.
Point (on a graph)
Point (on a number line)
Polygon
Possible
Pound
Predict
Probability
Product
Proportional
Pyramid
Pythagorean Theorem
Quadrilateral
Quart
Quarter
Quotient
Radii
Radius
Range
Ratio
Reasonable
Rectangle, rectangular
Rectangular prism
Reflection
Regular polygon
Rename
Repeating patterns
Replaced
Represents
Rhombus
Right angle
Right trapezoid
Right triangle
Ring (draw a ring around)
Rotation (including clockwise and counterclockwise)
Rounding, rounded
Row (s)
Same/ the same as
Scale
Scalene triangle
Scatter plot
Scientific notation
Schedule
Second
Segment
Set
Shaded
Shape
Short, shorter, shortest
Side (s)
Size
Similar
Smaller/smaller than
Solve/Solution
Sort
Sphere
Spinner
Square
Square centimeter
Square feet
Square inch
Square meter
Square number
Square unit
Square yard
Stem-and-Leaf plot
Story problem
Subtract
Sum
Surface area
Symbol
Symmetry
Table
Tall, taller, tallest
Temperature
Tens
Tenth (s)
Term (in a pattern)
Thousands
Thousandths
Three-dimensional
Ton
Transformation
Translation
Trapezoid
Trend
Triangle
Two-dimensional
Unit (using dot paper, base ten blocks, and measurement)
Unreasonable
Unshaded
Value
Venn diagram
Vertical axis
Vertices
Vertex
Volume
Week
Weight
Width
X-axis
Y-axis
Yard
Year

This list, while not exhaustive, includes vocabulary with which all teachers and students should be familiar. **Bold** words may be new vocabulary that should be used at this grade level.

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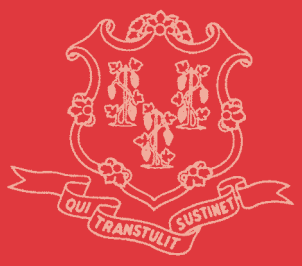
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