**Midterm Test Bank**

We have provided the section where the major concept occurred. BUT since this is a midterm, many questions need study of other investigations as well since it is important that students have their knowledge integrated. Material from Algebra 1 is assumed and material from Units 1 – 3 for questions from Units 1 – 3. Unit 4 questions assume familiarity with Units 1 – 4 and Algebra 1. Some terms from geometry are also used.

**Unit 1 Questions for Midterm Test Bank**

**1.1**

1. Is (12, 3) a solution of 4x – 5y < 30? Explain.

NO. 4(12) – 5(3) = 48 – 15 = 33 and 33 is not less than 30.

2. Is (4,5) a solution of the system 7x – 4y > 3 and 2x + 6y < 28. Explain.

NO. 7(4) – 4(5) = 8 > 3 but 2(4) + 6(5) = 38 and 38 is not less than 28.

3. A feasible region for the following constraints has been graphed below.



1. Determine the coordinates of the corner points and place in the table below.
2. The objective function is . Use the table to assist you to find the maximum value of *P*.

|  |  |  |
| --- | --- | --- |
| *x* | *y* | *P* |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| *x* | *y* | *P* |
| 0 | 0 | 0 |
| 2.5 | 2 | 3 |
| 2.5 | 0 | 5 |
| 3.75 | 1 | 6.5 |

The maximum is 6.5 and occurs when x is 3.75 and y is 1.

4. When winter approaches refineries adjust the fuel oil to gasoline ratio because homes must be heated and driving is reduced in the winter. One refinery must produce at least 2 gallons of gasoline for each gallon of fuel oil. For winter at least 3.2 million gallons of fuel oil a day needs to be produced. However with vacation time over the demand for gasoline is no more than 6.8 million gallons a day. If gasoline sells for $2.21 per gallon and fuel oil for $3.29 per gallon, how much of each should be produced in order to maximize revenue?

1. Define the variables.
2. Write all constraints including implied constraints.
3. Define the objective function.
4. Graph the feasible region.



1. Let x be the number of gallons of gasoline and y the number of gallons of heating oil produced.
2. x ≥ 0, y ≥ 0, y ≥ 3.2 million, x ≤ 6.8 million, x ≥ 2y



Note to teachers: You can have the students solve this problem completely if you wish. The corner points are: ( (6.4, 3.2), (6.8, 3.2) and (6.8, 3.4). The corner point (6.8, 3.4) will maximize the revenue 26.214 million dollars so the refinery needs to produce 6.8 million gallons of gasoline and 3.4 gallons of heating oil.

Once the ordered pairs are determined it is obviously with a bit of thought and no direct substitution which ordered pair ‘s coordinates would maximize the revenue.

**1.2**

5. Sketch the graph of a relation that is not a function and explain why your graph is not the graph of a function.



Graphical answers will vary. Students can justify that the graph is not the graph of a function using the vertical line test, or justify that there are at least 2 points on the graph that have the same input but different outputs.

6. Define a relation that is not a function by a table of values and explain why your table does not define a function.

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Tabular answers will vary. Students can justify that their relation is not a function by stating there is an input that has been repeated in the table but that the outputs are different. Or they could state that if the points are graphed, the graph would fail the vertical line test or students can use the definition of a function.

7. Each equation below defines a relation.

* 1. Which of the equations defines a function?
  2. For those that are not functions explain why they are not. Be very specific.
  3. For those that are functions, find their domain.
  4. For those that are functions, determine if they are 1 – 1. Explain how you know.

(1) *x*2 + *y*2 = 16

(2) *y* = 2*x* + 12

(3) *y* = (*x* – 4)2

(4) *y*2 = 4*x*

(5) *y* = *x*2 + 10 *x*

(6) 2*x* – 5*y* = 10

(7) y =

The following define a function:

(2) *y* = 2*x* + 12--------------------domain (-∞, ∞)—1 to 1

(3) *y* = (*x* – 4)2--------------------- domain (-∞, ∞) not 1 to 1

(5) *y* = *x*2 + 10 *x*------------------- domain (-∞, ∞) not 1 to 1

(6) 2*x* – 5*y* = 10------------------- domain (-∞, ∞)—1 to 1

(7) y = ------------------------ domain (-∞, ∞)----1 to 1

(1) *x*2 + *y*2 = 16 is not a function because it is the equation of a circle and circles do not pass the vertical line test or there are at least 2 points on the graph that have the same input but different outputs such as (0, 4) and (0, -4)

(4) *y*2 = 4*x* defines a parabola that opens sideways or fails vertical line test or there are at least 2 points on the graph that have the same input but different outputs such as (1, 2) and (1, -2).

Those that are 1-to-1 have graphs that pass the horizontal line test or each output is paired with exactly one input.

8. A(r) = πr2 defines the area of a circle as a function of its radius. The radius in measured in centimeters.

1. Find A(12) and describe what is means.

When the radius is 12 cm. the area is 144π square centimeters.

1. If the area is 100π square centimeters, determine the radius.

When the area is 100π square centimeters, the radius measures10 centimeters.

**1.3**

9. Which of the tables below could be linear based on the information we have? Which could be quadratic? Which by an exponential function? There may be a table that is not appropriately modeled by any of the former three functions families. If so write none of these. If you need to add columns to analyze the tables please do so. **Justify your answer**s.

**A.**

|  |  |
| --- | --- |
| *x* | *y* |
| -2 | -1 |
| -1 | -3 |
| 0 | -5 |
| 1 | -7 |
| 2 | -9 |
| 3 | -11 |

**B.**

|  |  |
| --- | --- |
| *x* | *y* |
| -1 | .125 |
| 0 | .5 |
| 1 | 2 |
| 2 | 8 |
| 3 | 32 |
| 4 | 128 |

**C.**

|  |  |
| --- | --- |
| *x* | *y* |
| -2 | 8 |
| -1 | -1 |
| 0 | -4 |
| 1 | -1 |
| 2 | 8 |
| 3 | 23 |

**D.**

|  |  |
| --- | --- |
| *x* | *y* |
| -2 | -4 |
| -1 | -.5 |
| 0 | 0 |
| 1 | .5 |
| 2 | 4 |
| 3 | 13.5 |

**E.**

|  |  |
| --- | --- |
| *x* | *y* |
| -2 | -12 |
| -1 | -9 |
| 0 | -6 |
| 1 | -3 |
| 2 | 0 |
| 3 | 3 |

1. Linear----constant average rate of change
2. Exponential—common ratio of 4
3. None of these no common ratio or difference or difference of differences
4. Quadratic—constant difference of differences or difference between differences
5. Linear----constant average rate of change

(a) For any table that appears to be linear, find a linear equation to model the given data.

(A) y = -2x – 5

(E) y = 3x – 6

1. One of the tables clearly defines a relation that is not one-to-one. Which one is it and how do you know the relation is not one-to-one?

In C, several inputs have the same output. For example, (-2, 8) and (2, 8).

1. One of the tables appears to be defining an even function. Which one and explain why.

C for for the limited values available.

10. Graph the following piecewise defined function.

= 4 for *x* ≤ -3

=│*x*│ for -3 < *x* ≤ 3

= (*x* – 3)2 + 3 for *x* > 3





11. Knowing that a function is even can make it easier to graph the function. Why?

Knowing that the graph has symmetry with respect to the y-axis means you can graph the function to the right of the y-intercept and just reflect instead of computing additional points.

12. For each of the following functions, determine whether the function exhibits linear, quadratic, exponential, or some other type of growth and justify your response:

a. f(x) = 2 – x2  
b. g(x) = 3x + 1  
c. h(x) =

f exhibits quadratic growth, g exhibits exponential growth, and h exhibits linear growth. One way to justify is to state the equation for f fits the y = ax2 + bx + c form, g is a translation of y = bx and h fits the y = mx + b form but students can justify by table or for linear by a graph

13. For each of the following functions, determine whether the function has even symmetry, odd symmetry, or neither even nor odd symmetry.

a. f(x) = 4x4 – 3x3 + 2x2  
b. g(x) = x – 3x3  
c. h(x) = x4 + 4x2 + 4  
d. k(x) = -5x3 + 7x

g and k exhibit odd symmetry, h exhibits even symmetry, and f exhibits neither even nor odd symmetry

**1.4**

14. Given the functions f(x) = x2 – 2x + 1 and g(x) = 7 – 5x, find the following values:

a. (f + g) (2)  
b. (f – g) (-1)  
c. (gf) (3)  
d. (4)  
(f + g) (2) = -2, (f – g) (-1) = -8, (gf) (3) = -32, (4) =

15. Suppose that the function H(d) gives the number of hours H of daylight in Hartford, CT as a function of the number of days d that have passed since the beginning of the year (so that d = 1 on January 1, d = 2 on January 2, etc.). Give a description of the meaning of each of the following expressions:

a. H(d + 2)  
b. H(d) – 2  
c. 2H(d)

H(d + 2) gives the number of hours of sunlight 2 days after day d; H(d) – 2 is two less than the number of hours of sunlight on day d; 2H(d) is twice as many hours as the number of hours of sunlight on day d

16. Consider the function . Describe f(x) in terms of a parent function, a vertical translation, a vertical stretch, a reflection across the x-axis, and/or a horizontal translation (if f(x) does not have one of these features, write “none” in the space below):

Parent function:

Vertical translation:

Vertical stretch:

Reflection across the x-axis:

Horizontal translation:

The parent function is f(x) = |x|; f(x) is shifted up by two units, stretched vertically by a factor of 3, reflected across the x-axis, and shifted to the right by 5 units.

17. Suppose that , and that . In the space below, sketch a graph of the functions f(x) and g(x) on the same set of axes.





18. When Mrs. Prasad went to vote the middle school cheerleaders were having their annual election day bake sale. Every year the cheerleaders gather in several of their families’ kitchens and make pound cakes, cupcakes, chocolate covered pretzels, brownies, cookies, and other goodies. They then package in zip lock bags by the slice or cupcake or 2 to 3 cookies and charge a flat $1 per zip lock bag. Their only cost is the cost of the ingredients, which this year amounted to $58.47.

1. Define the revenue function R as a function of the number of zip luck bags, x, sold.
2. Define the fixed cost function, C as a function of x.
3. Define the profit function, P as a function of x.
4. If the cheerleaders sold 358 bags of goodies, find R(x).
5. If the cheerleaders sold 358 bags of goodies, find P(x).
6. If the cheerleaders made a profit of $324.53 this year, how many packages of zip lock goodies did they sell?
7. R(x) = 1x
8. C(x) = 58.47
9. P(x) = 1x – 58.47
10. $358
11. $299.53
12. 383 bags

**1.5 (For STEM-intending students)**

19. If f(x) = x2 + 5 and g(x) = evaluate ach expression or state it cannot be evaluated.

a. f(g(16)) 21

b. f(f(16)) 68126

1. g(f(16)) √261

d. g(g(16)) 2

e. f(g(-4)) cannot be evaluated, -4 is not in the domain of g

20**.** A local electronics store is having a big sale. All electronics with regular prices over $950 are on sale for $300 less than regular price. In addition, you have a 20% off coupon good on one item, even if on sale. You need a new laptop. If x represents the computer’s regular price, let f model the reduction by $300, and let g of x model the 20% reduction.

a. Define f and give its domain.

b. Define g and give its domain

c. Find f(1100)

d. Find f(800)

e. Find g(200)

f. Find g(f(x)), give its domain and interpret what this composite function means.

g. Find g(f(1800)) and interpret what it means

a. f(x)= x – 300 for x > 950

b. g(x) = .80x for x > 0

c. f(1100) = 800

d. f(800) = 800

e. g(200) = 160

f. g(f(x)) = .8x – 240 for x > 950; for an item over $950, we figure its sales price and then take a 20% discount

g. g(f(1800)) = 1200; an item regularly priced at $1800 will cost $1200 after the $300 discount and 20% off coupon are applied

21**.** An oil spill occurred in the Gulf of Mexico. Initially the spill is circular. The radius is increasing at the rate of 8 miles per hour.

1. Define an area function A of the radius r for the circle.
2. Then define a function r as a function of time in hours since the spill first occurred.
3. Lastly define A(r(t)) and use it to find and interpret A(r(11)).
4. A(r) = πr2
5. r(t) = 8t
6. A(r(t)) = π(8t)2 = 64πt2; A(r(11)) = 64π(11)2 = 7744π; after 11 hours the spill covers an area of 7744π square miles.

**1.6**

22**.** A function f has an inverse f -1. Fill in the ? in the next sentence.

If f(2) = 6 then f ( ?) = ?

6 and then 2

23. Draw a graph of a function that does not have an inverse function and explain why it does not.



Answers will vary

24. Are the two functions inverses? Use composition to determine if they are.

f(g(x)) = 5(0.2x + 2) – 10 = x and g(f(x)= .2(5x – 10) + 2 = x ; f and g are inverses

**1.7**

25.Consider the function .

1. What is the domain of f and what is the range of f?
2. f does not have an inverse function? Why?
3. Restrict the domain of f so that an inverse function can be defined.
4. What is the domain of the inverse function?
5. What is the range of the inverse function?
6. Domain of f is (-∞,∞) and range is [0, ∞)
7. It is not one-to-one
8. Domain [0, ∞) or can use (-∞, 0]
9. and e. Domain [0, ∞) and range is [0, ∞); or Domain [0, ∞) and range is (-∞, 0]

**Unit 2 Questions for Midterm Test Bank**

**2.1**

1. The graph of is shown below. Describe what transformations are required to transform into a parabola that has vertex of and a *y*-intercept of . Graph the resulting parabola on the graph below.



Answer: The parent function is reflected across the *y*-axis, shifted (or translated) 2 units right and two units down. The equation is:

. There is no vertical stretch or compression.



1. The function undergoes the following transformations:
2. Shift up 4 units
3. Shift left 3 units
4. Reflect about the *x*-axis

Find the equation of the resulting function. Show your work.

Answer: Doing the horizontal and vertical shifts results in a vertex of (-3, 4). There is no vertical stretch, so *a* = 1.  When the graph is reflected about the *x*-axis, the vertex changes from (-3, 4) to (-3, -4), and *a* changes from 1 to -1. Using the vertex form of the equation we get:

1. The graph below displays a quadratic function. Identify the equation of the function, and determine the following features of the function: intercepts, intervals where it is increasing and decreasing, concavity, vertex, axis of symmetry, and end behavior.



Answer: The function has a vertex of (-2, -5) and is opening upward. There is no vertical stretch, so *a* = 1. The equation is of the function is The *x*-intercepts are and . The *y*-intercept is (0, -1). The function decreases on the interval and increases on the interval . The function is concave up. The axis of symmetry is . As *x* approaches , *y* approaches . As *x* approaches , *y* approaches .

1. a. Convert the function to standard form.

Answer:

b. Now convert the function to factored form.

= 2(x2 + 8x + 7)= 2 (x + 7)(x + 1)

**2.2**

1. Multiply the following binomials.

1. Factor the following trinomials.

1. Solve the following quadratic equation by factoring.

The solutions are 7 and -3

1. Solve the following absolute value equation.

The solutions are 4 and -8

1. Solve the following quadratic equation using the completing the square method.

= 1

= 1 + 16

The solutions are and

1. Solve the following quadratic equation.

a = 2, b = 3, c = -1

The solutions are and

**2.3**

1. Simplify the following expressions involving complex numbers.

Answers:

**2.4**

1. Without doing any calculations, predict the sign of the discriminant of the function. Explain your answer.

When *x* + 3 is squared it will be positive or 0 for any *x*. When the value is multiplied by -1 it will be negative or zero. When 2 is subtracted from this value it will be less than or equal to 2. So for all real *x*. The result is a parabola below, not intersecting the *x*-axis. Therefore there are no real roots to the equation. The discriminant must be negative.

1. Find the discriminant of the function and describe what the discriminant says about the function.

Discriminant is 16 – 4(1)(2) = 16 – 8 = 8. The positive discriminant tells us that the function has two real roots. So there are two *x*-intercepts.

**2.5**

1. Identify the equation of the quadratic function whose vertex is and that passes through the point .

The vertex is (3,2) so the function has the form . Plugging in the point (-1,-2) leads to the equation . The solution is

*a* = -1/4. So, the function is .

1. The height of the baseball thrown upward into the air *t* seconds after it is released is approximated by the function
2. Find the maximum height of the baseball.
3. Find the number of seconds that it takes for the baseball to reach the ground.
4. The maximum height occurs at the vertex: t = -b/2a = -80 / 2(-16) = 2.5 seconds. The height at 2.5 seconds is *h*(2.5) = 106 feet.
5. The ball hits the ground when the height is 0. Solve (using any method). The positive solution is t ≈ 5.07 seconds.
6. A builder has 400 feet of fencing to fence off a rectangular area for a park playground. What dimensions should the rectangular playground have in order for the playground to have a maximum area? Create a mathematical model to solve this problem.

The perimeter of a rectangle is twice the length plus twice the width, so . Solving for *l* gives . The area is . The area is maximized *w* = 100. So the dimensions that maximize the area *w* = 100 feet and *l* = 100 feet.

1. A tunnel has a parabolic shape as shown in the figure below. The maximum width of the tunnel is 18 meters (at the base of the tunnel) and the maximum height of the tunnel is 12 meters. A car with a height of 2 meters enters the tunnel and is 2 meters from the left side of the tunnel. What is the vertical distance between the top of the car and the roof of the tunnel? Create a mathematical model to solve this problem.



The parabolic arc can be modeled by a quadratic function. One approach is to place the origin of the coordinate system at the left-most point on the arc. This leads to the arc comprising three points: (0,0), (9,12), and (18,0). Since the vertex is (9,12), the function has the form . Plugging in the point (0,0) leads to the equation . The solution is *a* = -4/27. So, the function is: .

The height of the tunnel 2 meters from the left side is meters. The vertical distance between the top of the car and the roof of the tunnel is 4.74 – 2 = 2.74 meters.

**2.6**

1. Solve the following radical equation.

Possible solutions are 7 and -1.

When we check for extraneous roots we see that -1 is an extraneous solution and 7 is an actual solution. Solution: 7

**Unit 3 Questions for Midterm Test Bank**

Show all your work for full credit on a problem. When asked for an explanation, be sure to respond in complete sentences.

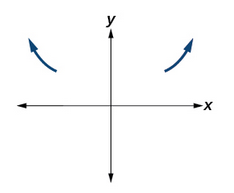
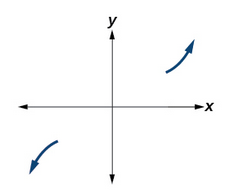
1. Match the polynomial function to the graph of its end behavior. Explain how you decided which graphs to match with which function.

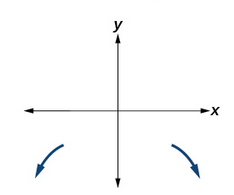
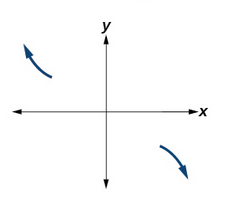
a.

b.

c.

d.

i.  ii. 

iii.  iv. 

1. Equation b. Degree 6; +leading coefficient
2. Equation c. Degree 3; +leading coefficient
3. Equation d. Degree 4; –leading coefficient
4. Equation a. Degree 3; –leading coefficient
5. The degree, zeros, and a solution point of a polynomial function, *f(x)*, are given.

Polynomial 1: Degree = 3 Zeros: 4, 0, -5 Solution point: *f(-1)* = -60

Polynomial 2: Degree = 3 Zeros: 4, -3i Solution point: *f(2)* = -13

Note: Option for Zeros to differentiate the question.

1. List any the x-intercepts of each function.

Polynomial 1: (4,0), (0,0), (-5,0)

Polynomial 2: (4,0)

1. Write each function in factored form.

Polynomial 1: *f(x) = -3x(x–4)(x+5)*

Polynomial 2: *f(x) = ½(x-4)(x2+9)*

1. The function models the percent of the U.S. population was foreign born over the decades from 1900 to 2010. If x = 0 corresponds to the year 1900 and x = 10 corresponds to the year 1910, answer the following questions.
   1. Use the model to approximate the percent of the U.S. population that was foreign born in the year 1954.

*x* = 54 for the year 1954. So f(54) = 7.14 %

1. Use your calculator to graph *f(x)* over the indicated period of time and approximate the year in which the percent of the U.S. population that was foreign born reached a minimum.

Approximately 1973 with a percent of 5.81%

1. The actual percent of the U.S. population that was foreign born in 2007 was 12.6%. Is the function a good model in predicting the U.S. population that was foreign born? Explain your answer.

The model predicts that the percent to be 12.4%, so it seems to be an accurate model.

1. Your friend looked at the graph of the function in the window for x from -4 to 4 and for y from -4 to 4 and concluded that there was only one x-intercept when x=3. Without changing the window on the calculator, verify whether their conclusion is true or false. Show all your work.



The polynomial can be factored knowing that (3,0) is an x-intercept, which makes

(x-3) a factor. Using long division, the polynomial can be factored into (x–3)(x–6)2. Therefore there is another x-intercept, which is (6,0), at which point the graph is tangent to the x-axis.

1. Expand the expression (2x2 – 5y)4 using the Binomial Theorem.

Using the Binomial Theorem to expand (a+b)4, where we let a = 2x2 and b = -5y and Pascal’s Triangle to obtain the coefficients of the terms of the expansion, we obtain:

*(2x2–5y)4 = 16x8 –160x6y + 600x4y2 – 1000x2y3 +625y4*

1. Create a polynomial function expressed as the product of linear factors such that it has degree 5, has three x-intercepts, approaches -∞ as x approaches +∞, and whose graph is tangent to the x-axis for at least one value of x. Explain how you created your polynomial.

Answers will vary, but in order to have 3 x-intercepts and at least one point where the graph is tangent to the x-axis, you must have 3 zeros of the function and two points factors of multiplicity 2. In addition the leading coefficient must be negative.

Therefore, one example is: f(x) = -2(x+3)(x–1)2(x-4)2 whose graph is shown below graphed in a window with an x-scale of 1 and a y-scale of 20.



**Unit 4 Questions for Midterm Test Bank**

**4.1**

1. The relationship between the force of gravity g between Earth and any other object and the distance that separates their centers is F = k/d2 .
   1. Explain why this is an example of an inverse square law?
   2. If a young man who weighs 160 pounds on earth (therefor about 6400 km from the center of the earth), what would be his weight if he could travel to a point about 6400 km above the earth?
   3. An inverse square law is one where one quantity is inversely proportional to the square of the other and when applied in physics implies that one quantity is inversely proportional to the square of the distance from the source of the other variable. For example distance from origin of the sound or the light source.
   4. 160 = k/64002 and solve now and get 40 lb or an understanding of the law means since he is twice as far way for the center of the earth his weight will be 4 times less hence 40 lb.

**4.2**

1. Graph and then compare and contrast the following function’s graphs with regard to concavity, domain, range, symmetry and intervals of increase or decrease given that and .



Both have the vertical asymptote with equation x = 0. In quadrant 1, both are decreasing and concave up. f is only defined on (0, ∞) but g is on (-∞, 0) U (0, ∞) and the range of f is (0, ∞) while the range of g is (-∞, 0) U (0, ∞). g is odd and f has no symmetry.

1. The time required for a pendulum to swing back and forth once is called its period. The length L of a pendulum is directly proportional to the square of T. A 2 foot pendulum had a 1.6 second period.
   1. Write and equation that expresses this direct proportion. Us k as the constant of proportionality in your equation
   2. Find the constant of proportionality, k.
   3. Predict T for a pendulum having a length of 6 feet.
   4. L =k T2
   5. 2/1.62 = .78125
   6. About 2.77 seconds
2. If y varies inversely as x and y = 5 when x is 0.6, find y when x is 10.

0.3

**4.3**

1. Graph and answer the following questions:
   1. What is the domain of f?
   2. If there is a vertical asymptote, what is its equation?
   3. If there is a horizontal asymptote, what is its equation?
   4. What are the coordinates of the x-intercept?
   5. What are the coordinates of the y-intercept?
   6. Over what interval(s) is the function decreasing?
   7. Over what interval(s) is the function concave up?



1. (-∞, 3) U (3, ∞)
2. x = 3
3. y = 0.5
4. (-4, 0)
5. (0, -2/3)
6. (-∞, 3) U (3, ∞)
7. (3, ∞)



1. Write an equation that will define a rational function whose graph is the graph of f(x) = 1/x, vertically stretched by a factor of 2, shifted to the right 4 units, and shifted down 3 units.

– 3

**4.4**

1. Suppose Benjamin places n balls, numbered 1 to n, in a container. Four of the balls that are in the container are winning balls. The container is shaken.
   1. What is the probability of drawing a winning ball?

4/n

* 1. Calculate the probability of drawing a winning ball if there are 250 balls in the container (n = 250). Then calculate for n = 5,000.

4/250 or 2/125

4/5000 or 1/1250

1. Suppose Benjamin places n balls, numbered 1 to n, in a container. Four of the balls that are in the container are winning balls. Suppose Benjamin’s sister Meera adds 5 balls that are not winning balls. The container is shaken. What is the probability of drawing a winning ball?

1. Suppose Benjamin places n balls, numbered 1 to *n*, in a container. Suppose *m* of the balls that are in the container are winning balls. Suppose Benjamin’s sister Meera adds 5 balls and that two of these balls are winning balls. The container is shaken. What is the probability of drawing a winning ball?

1. Find an expression for the perimeter of the isosceles trapezoid with legs of measure 4.





1. Find an expression for the area of a triangle with base meters and altitude meters.

**4.5**

1. In Unit 1, you combined functions finding f(x) + g(x) and f(x) – g(x).

Suppose and .

1. Find h(x) = f(x) + g(x) and find the domain of h.

1. Find k(x) = f(x) – g(x) and find the domain of k.

1. Now solve f(x) – g(x) = 0.

-3/4

1. Javin and William are painting the interior of houses during summer vacation. Javin can paint an average living room in 12 hours and William can paint an average living room in 14 hours. If they work together how long will it take them?

84/13 hours

1. Solve over the Complex Numbers:






1. No solution
2. 21/20