**More Standard Form**

The standard form of a line is A*x* + B*y* = C.

The *x*’s and *y*’s are on the same side of the equal sign.

The constant term is alone on the other side of the equal sign.

To find the *x-*intercept, substitute 0 in for *y*, and solve for *x*.

To find the *y-*intercept, substitute 0 in for *x* and solve for *y*.

To transform an equation from standard form to slope-intercept form, solve for *y*.

The slope-intercept form of a line is *y = mx + b*.

1. Determine if the equation is in standard form. If not, explain why.
2. $5x-y=8$
3. $y=-4x-3$
4. $x+3y+7=-2$
5. $x+3y=0$
6. $y=4+4(x-2)$
7. $-6x+4y=-7$
8. Find the *x*-intercept and *y*-intercept.
9. $5x+2y=10$ b. $x-3y=-6$
10. $-4x+y=4$ d. $2x+4y=12$
11. Plot the intercepts from question 2 and connect them to make a line.
12. $5x+2y=10$ b. $x-3y=-6$

 

c. $-4x+y=4$ d. $2x+4y=12$

 

1. Use the graphs in question 3 to find the slope of each line.
2. $5x+2y=10$ Slope =
3. $x-3y=-6$ Slope =
4. $-4x+y=4$ Slope =
5. $2x+4y=12$ Slope =
6. Transform the following equations into slope-intercept form.

a. $5x+2y=10$ b. $x-3y=-6$

c. $-4x+y=4$ d. $2x+4y=12$

1. You are in charge of buying the hamburger and chicken for a barbecue. The hamburger costs

$2 per pound and the chicken costs $3 per pound. You have $30 to spend.

1. Use the verbal model below to help you write an equation that models the different amounts of hamburger and chicken that you can buy.

**Price of Weight of Price of Weight of Money to**

**Hamburger • Hamburger + Chicken • Chicken = Spend**

Let *x* represent the weight of hamburger (in pounds) and *y* represent the weight of chicken. Write an equation that models how much of each type of meat you can purchase for $30.

1. Find the *x*-intercept. What does it mean in the context of the problem?
2. Find the *y*-intercept. What does it mean in the context of the problem?
3. Graph using the intercepts. Make sure to label the axes and choose a proper scale.



1. If you buy 3 pounds of hamburger, how many pounds of chicken can you buy? Show your work.
2. If you buy 4 pounds of chicken, how many pounds of hamburger can you buy? Show your work.
3. Mr. Banks is worried that he was overcharged by the automotive detailing shop when they cleaned his Mustang. He dropped his car off at 9 am and picked it up at 11 am. The worker charges $35 per hour together with a one-time $20 supplies fee.
4. Use the verbal model to help you write an equation that models total cost of having a car detailed.

**Total cost = (Cost per hour) • (Number of hours) + One-time supply fee**

1. What are the independent and dependent variables?
2. Is this equation in standard form or slope-intercept form? Explain how you can tell.
3. If the bill came to $125 many hours did Mr. Banks pay for? (Use your equation to answer this question.)
4. Should Mr. Banks speak to the manager?
5. André and Teresa ride their mountain bikes along the old logging roads in the Berkshires where cell phone reception is unreliable. Their walkie-talkies have a range of 60 miles. From their starting point, they decide to explore in opposite directions, but they want to stop when they are out of range. When she is biking, Teresa is able to maintain a speed of 6 mph. André bikes at 5 miles per hour. Sometimes Teresa or André will stop and take a rest, swim in the stream, eat lunch, or fix a flat tire. How many hours could Teresa and André be riding on their bikes before they lose touch with each other?

 Teresa (6 mph) Andre (5 mph)

1. Use the verbal model below to help you write an equation that models the different number of hours that Teresa and Andre might be on their bikes.

 **Distance Teresa travels + Distance André travels = Range of walkie-talkie**

(Teresa’s rate • Teresa time on bike) + (Andre’s rate • Andre’s time on bike) = Range of walkie-talkie

Let *T* be the total hours that Teresa is actually biking.

Let *A* be the total number of hours that André is on his bike.

Write an equation that models the situation.

1. Is this equation in standard form or slope-intercept form? Explain how you can tell.
2. Find the *T*-intercept. What does it mean in the context of the problem?
3. Find the *A*-intercept. What does it mean in the context of the problem?
4. Graph using the intercepts. Make sure to label the axes and choose a proper scale.



1. If Teresa bikes for 2.5 hours, how long can André ride? Show your work.
2. If Andre bikes for 7.2 hours, how long can Teresa ride? Show your work.