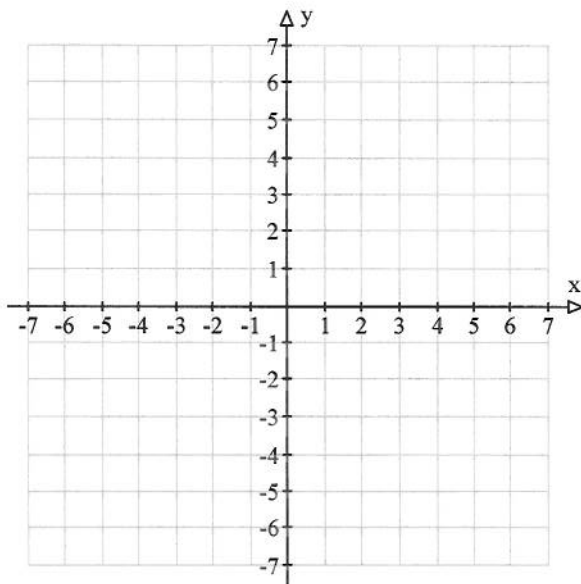
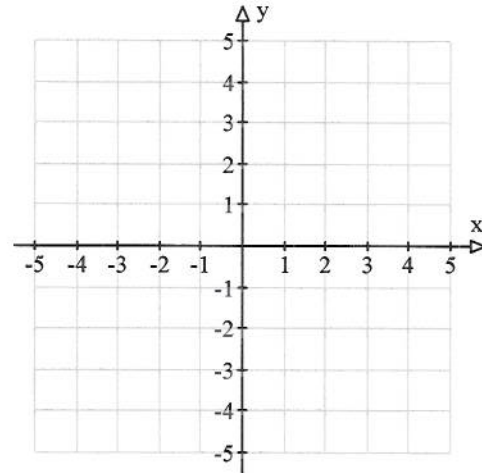


1. Bring in slope-intercept form, then graph:  
 $2x - 3y = 15$



2. Graph the line  
 $x = -2$



3. Calculate the equation of the line with a slope of  $-\frac{1}{3}$  that passes through the point  $(-9, -2)$ .  
Set up the equation in point-slope form, then convert to slope-intercept form.

**MAT 012 PRACTICE TEST 2 (Not for points)**

4. Given the points  $(-2, -18)$  and  $(1, -6)$ .

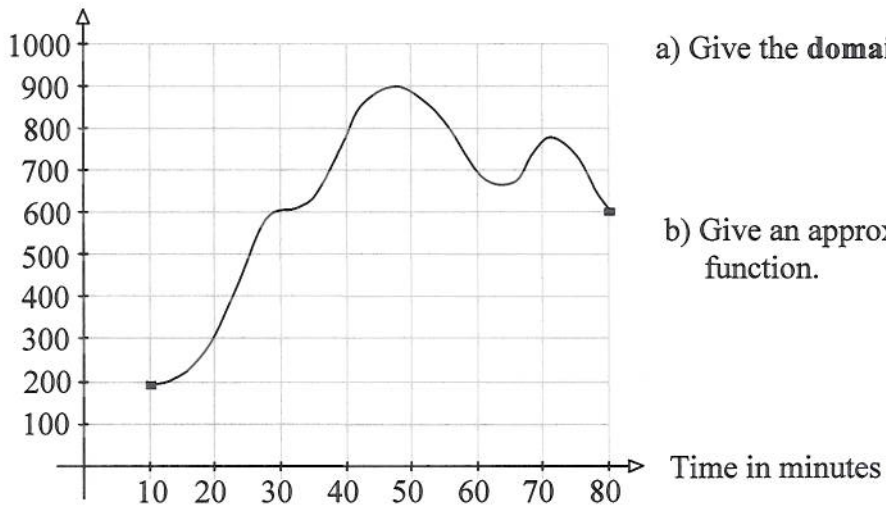
a) Find the slope of the straight line that goes through these two points.

b) Set up the equation of the line in point-slope form.

c) Convert your equation from part (b) to slope-intercept form.

5. A hot-air balloon on a research mission is tracked for a certain amount of time by the instruments on the ground and its altitude above sea level recorded. The measurements started ten minutes into the experiment.

Altitude of hot air balloon (in feet above sea level)



a) Give the **domain** of the function.

b) Give an approximate **range** of the function.

d) At which time has the balloon reached an altitude of 500 feet?

e) Which altitude is recorded at the 1 hour mark?

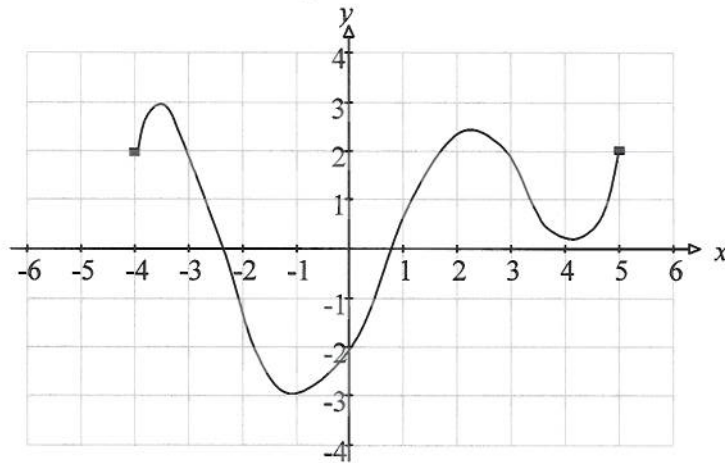
**MAT 012 PRACTICE TEST 2 (Not for points)**

6. Let  $f(x) = -x^2 + 3x - 5$

a) Evaluate  $f(-4)$

b) Find and **simplify**  $f(a - 2)$

7. Give the domain, range, and specific function values for the following graph:



Domain:

Range:

For this graph, give the following:

$f(-3) =$

$f(0) =$

$f(-1) =$

$f(5) =$

8. Let  $f(x) = x^2 + 5$  and  $g(x) = 2x - 6$

a) Find  $(f - g)(x)$  and simplify

**MAT 012 PRACTICE TEST 2 (Not for points)**

9. Let  $f(x) = x^2 + 5$  and  $g(x) = 2x - 6$

a) Give  $\left(\frac{f}{g}\right)(x) =$

b) What is the domain of  $\left(\frac{f}{g}\right)(x)$  found above?

10. Give the domain of the function  $h(x) = 3x^2 - 4x + 1$

11. Many houses in the Annapolis area have wells and are not connected to the city water system. A well drilling company charges its customers a flat fee as well as a fee based on the number of feet it digs into the ground. The company charges \$3040 for a well 60 ft deep and \$7790 for a well 250ft deep. A linear function can be used to model the situation.

a. What does  $x$  stand for?

b. What does  $y$  stand for?

c. Give the two points:

d. Use Algebra to find the **slope** of the line that can be used to model the situation.

e. Set up the **equation of the line** modeling the cost of a drill in point-slope form.

f. Bring your equation from part (e) into slope-intercept form.

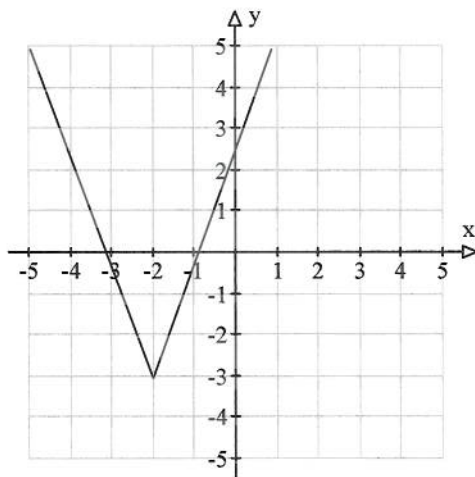
12. The time,  $t$ , required to do a job varies **inversely** as the number of people,  $p$ , working on it. It takes 5 people 32 hours to complete a certain job.

a) Find an equation that models this variation. (*Don't forget to start with a legend for the variables used.*)

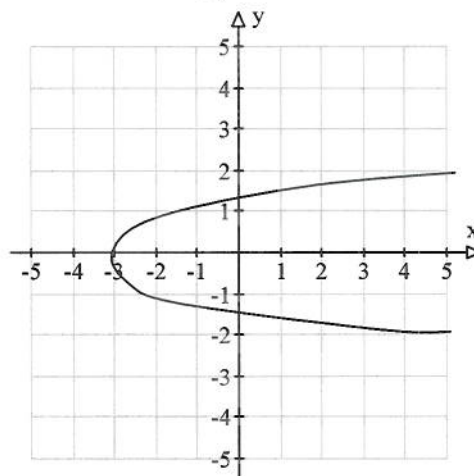
b) Use the equation to determine the following: If the same job is to be completed in 20 hours, how many people need to work on it?

13. Is the following graph the graph of a function?

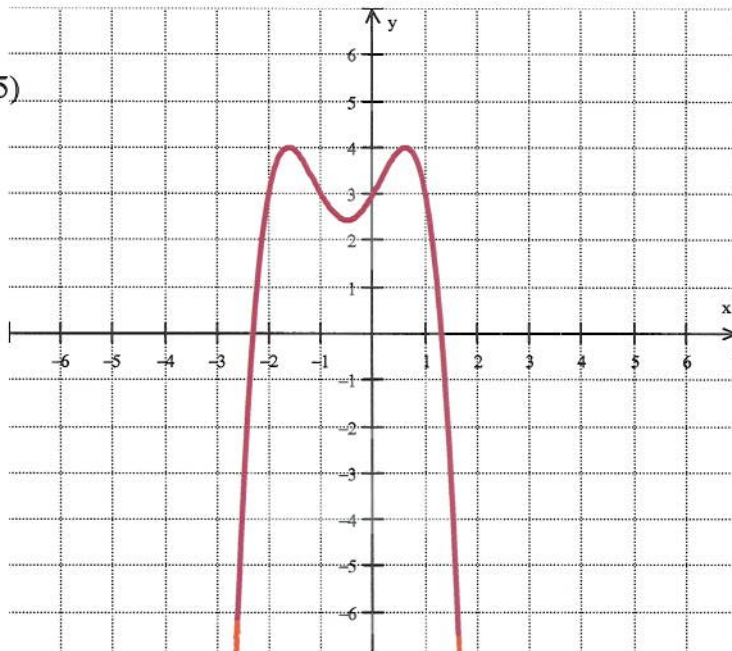
a)



b)



14. In the following graph of  $f(x)$   
 a) Find the approximate value of  $f(-0.5)$



- b) Give all value(s) for which  $f(x) = 3$ .
- c) Give the domain.
- d) Give the range.

15. A factory makes desks. The cost,  $C(x)$ , of running the factory is \$1700 per day plus \$125 for each desk manufactured.

- a) What does  $x$  stand for?
- b) What does  $C(x)$  stand for?
- c) Set up a function that models  $C(x)$ .
- d) Use the model from above to calculate how many desks were made on a day where the total cost was \$6450 (*Show how to solve in proper notation. Do NOT guess the answer and just perform a check.*)