Math-2 Name_____ ID: 1

SM2 HW #6-5 (Review)

Date_____ Period____

Write the slope-intercept form of the equation of the line through the given points.

1) through: $(-3, -3)$ and $(-5, 1)$

Write the slope-intercept form of the equation of the line described.

2) through: $(4, 3)$, perp. to $y = -\frac{4}{7}x - 1$

Simplify. Your answer should contain only positive exponents.

3) $2x^4y^{-3} \cdot 4x^4y^{-1}$

4) $(3hj^{-2})^2$

5) $\frac{(x^2y^4)^2}{2yx^3}$

6) $\left(\frac{nm^0}{2nm^4}\right)^{-4}$

7) The cost of hiring a plumber, C, is a function of the time spent on the job, 't', in hours. The plumber charges a fee of $20 (just for making a house call) plus $29 per hour.
a) Write an equation that models this situation. Use variables the represent the quantities in the problem (not just "x" and "y").
b) If the job takes 14 hours, how much did the plumber charge you?
c) Draw a graph tha shows this relation. Correctly label the axes.

8) Give an example demonstrating that the irrational number system is:
a) not closed for division.
b) not closed for multiplication
c) not closed for subtraction.

9) You want to construct an corral that has the maximum area possible. You decide to make one of the sides of the corral along a large barn so you don't have to fence that side. You have 300 feet of fence to build the corral.
a) Draw an overhead view of the corral showing the sides and the barn. Make sure you use only one variable to label the side lengths.
b) What is the equation that models the area of the corral?
c) What is the maximum area of the corral?
d) What are the width and length for this maximum-area corral?

10) You want to construct an corral that has the maximum area possible. You decide to make one of the sides of the corral along a large barn so you don't have to fence that side. You have 625 feet of fence to build the corral.
a) Draw an overhead view of the corral showing the sides and the barn. Make sure you use only one variable to label the side lengths.
b) What is the equation that models the area of the corral?
c) What is the maximum area of the corral?
d) What are the width and length for this maximum-area corral?

a) Factor each equation.
b) Write the solutions as x-y pairs

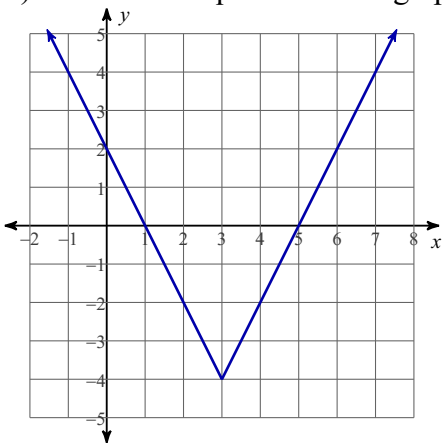
11) $7m^2 - 55m - 8 = 0$

12) $8x^2 + 33x + 4 = 0$

13) $3v^2 + 5v + 2 = 0$

14) $3r^2 - 13r + 12 = 0$

15) a) Where is the function increasing?
b) Where is the function decreasing?
c) Where is the function positive?
d) Is the function even, odd, or neither?
e) Where are the extrema and what type are they?
f) How is it related to its parent function?
g) What is the end behavior? (use "infinity notation")
h) What is the domain?
i) What is the range?
j) What is the average rate of change between x = 1 and x = 3?
k) What is the equation of the graph?



16) A rectangle with a width of (5x + 2) feet and a length of (2x - 1) feet has an area of 100 square feet. What is the rectangle's width and length?

17) A ball is thrown upward from the top of a 100 foot building (10 stories tall) initial velocity of 35 ft/sec. The equation modeling this situation is $h(t) = -16t^2 + 35t + 100$
a) What is the ball's maximum height above ground level?
b) How many seconds after it was thrown will it reach the maximum height?
c) How many seconds after it was thrown will it hit the ground?

18) The school that Nicole goes to is selling tickets to a play. On the first day of ticket sales the school sold 12 senior citizen tickets and 6 child tickets for a total of $198. The school took in $63 on the second day by selling 3 senior citizen tickets and 3 child tickets. What is the price each of one senior citizen ticket and one child ticket?

19) Jessica's school is selling tickets to a play. On the first day of ticket sales the school sold 6 senior citizen tickets and 9 student tickets for a total of $183. The school took in $54 on the second day by selling 3 senior citizen tickets and 2 student tickets. What is the price each of one senior citizen ticket and one student ticket?