Name_____ ID: 1

Math-1050 Unit 1 Test Prevew HW

Date_____ Period_____

Solve each equation.

1) $\left|1 + b\right| = 9$

2) $\left|-4 + x\right| = 9$

3) $\left|-10p + 5\right| = 65$

4) $\left|10 - 4n\right| = 2$

5) $4\left|4 - 10n\right| - 1 = 103$

6) $-\left|4x + 4\right| - 2 = -10$

Solve each inequality and graph its solution.

7) $\left|x - 6\right| > 4$

$$\xleftarrow{\hspace{0.3cm}}\underset{-1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4\ \ 5\ \ 6\ \ 7\ \ 8\ \ 9\ \ 10\ 11\ 12\ 13\ 14}{\rule{8cm}{0.4pt}}\xrightarrow{\hspace{0.3cm}}$$

8) $\left|m + 7\right| < 11$

$$\xleftarrow{\hspace{0.3cm}}\underset{-20\quad -16\quad -12\quad -8\quad -4\quad 0\quad 4}{\rule{8cm}{0.4pt}}\xrightarrow{\hspace{0.3cm}}$$

9) $\left|6 + x\right| + 10 > 24$

$$\xleftarrow{\hspace{0.3cm}}\underset{-20\ \ -16\ \ -12\ \ -8\ \ -4\ \ 0\ \ 4\ \ 8}{\rule{8cm}{0.4pt}}\xrightarrow{\hspace{0.3cm}}$$

10) $-4 + \left|-9m\right| < 23$

$$\xleftarrow{\hspace{0.3cm}}\underset{-5\ -4\ -3\ -2\ -1\ 0\ 1\ 2\ 3\ 4\ 5\ 6\ 7}{\rule{8cm}{0.4pt}}\xrightarrow{\hspace{0.3cm}}$$
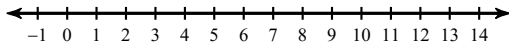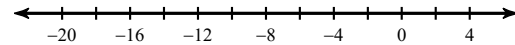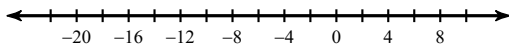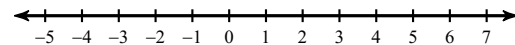
11) Is the following a function? $x^2 + y^2 = 10$

If it is not a function, explain why it is not.

12) $f(x) = x^2 - 5x + 4$

(a) Find f(-2)   (b) find x if f(x) = 0   (c) find f(x + 2)   (d) find f(x + h)

13) Find the domain:

$$f \cdot x = \frac{2x^2 + 3x - 1}{x^2 - 16}$$

14) Find the domain:

$$f \cdot x = \frac{x^2 + 3}{x^2 - 6x - 16}$$

15) Find the domain:

$$f(x) = 5 - 3\sqrt{2x + 7}$$

16) Find the domain:

$$f(x) = 4 + 3\sqrt{1 - 2x}$$

Perform the indicated operation.

17) $f(x) = -3x + 5$
$g(x) = x - 5$
Find $\left(\dfrac{f}{g}\right)(x)$

18) $h(x) = 2x - 3$
$g(x) = 4x - 2$
Find $(h - g)(x)$

19) $f(n) = 2n + 2$
$g(n) = 3n + 2$
Find $(f \cdot g)(n)$

20) $g(x) = 2x^2 + 4x$
$h(x) = 2x - 1$
Find $(g + h)(x)$

21) $g(x) = x^2 - 2x$
$h(x) = 3x + 5$
Find $(g + h)(-8)$

22) $g(t) = 4t + 2$
$h(t) = 2t + 2$
Find $(g - h)(4)$
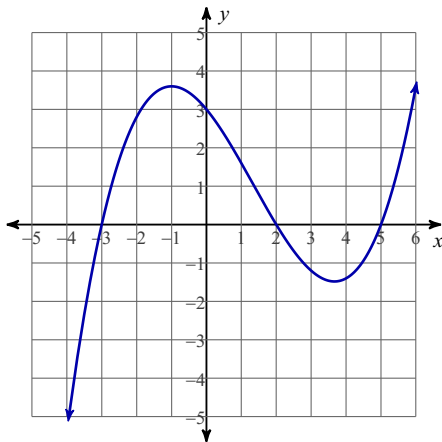
23) $g(a) = 2a + 5$
$h(a) = 2a$
Find $(g \cdot h)(3)$

24) $f(n) = n^3 + 2n^2$
$g(n) = -2n - 5$
Find $\left(\dfrac{f}{g}\right)(-3)$

25) a) $f(0) = ?$

b) $f(x) = 0$, $x = ?$

(c) $f(-2) = ?$

(d) what are the local
mimimum/maximum function values?

26) $f(x) = 2x^2 + 3x - 10$

Construct and simplify the "difference quotient for the funtion $f(x)$.

Difference Quotient: $\dfrac{f(x + h) - f(x)}{h}$

27) Compare the following equation to the parent function for quadratics $y = x^2$.
a) Give the location of the vertex (x,y).
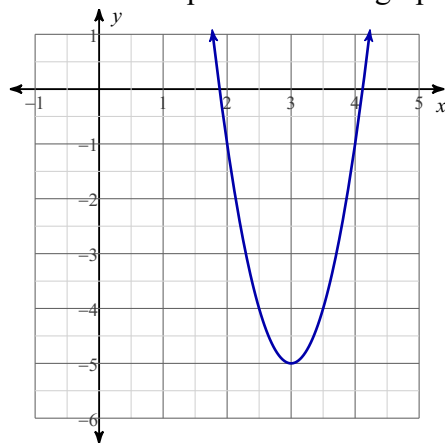b) Identify the transformations that have been applied to the parent function.

$y = 3x^2 + 2$

28) Compare the following equation to the parent function for quadratics $y = x^2$.
a) Give the location of the vertex (x,y).
b) Identify the transformations that have been applied to the parent function.

$y = 6(x + 3)^2 - 1$

29) What is the equation for the graph?
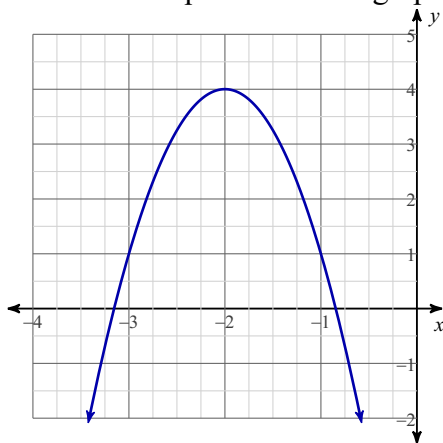
30) What is the equation for the graph?

31) For the following function: $y = x^2 - 14x - 5$
   a) What is the vertex?
   b) What is the axis of symmetry?
   c) What are the x-intercepts?

32) For the following function: $y = 2x^2 - 8x + 7$

   (a) What is the vertex form equation?

   (b) What are the x-intercepts?

33) The relationship between the number of units sold ('x') and the price of the unit ('P') is given by:
   $x = 1500 - 25P$
   Recall that "Revenue" is given by the relation: $R = px$
   a) Write a relation that gives "revenue" as a function of "price".
   b) What price will yield maximum revenue?
   c) What is the maximum revenue?
   d) How many units must be sold for maximum revenue?

34) A horse owner has 1000 feet of fence. She wants to have a fenced rectangular corral. Because her property is adjacent to a river, she decides to put the corral right next to the river so that she doesn't have to fence that side.

a) Write a relation for the total amount of fencing used in the 3 sides of the corral (using "L" for length which are the sides that are perpendicular to the river and "W" for width which is the side of the corral that is parallel to the river).
b) Write a relation for area "A" of the corral as a function of "L" only.
c) What length gives the maximum area for the corral?
d) What is the maximum area of the corral?
e) What will be the width of the corral?

35) For the following x-y pairs in relation 'f': (2, 3), (4, -2), (-6, 2)

find:

a) $3f(x) + 1$
b) $f(x - 3)$
c) $f(2x) - 2$

36) Solve and graph the quadratic inequality:

$x^2 > 14 - 5x$

37) Solve and graph the quadratic inequality:

$x^2 - 12x + 32 \leq 0$