Name_____

1) READ THROUGH ALL INSTRUCTIONS !!

Summer Packet for students entering PreCalculus/Trigonometry

Please have the following worksheets completed and ready to be handed in on the first day of class. The purpose of this packet is to review problems already mastered and to prepare you to enter the upcoming course. Make sure you show your work for all problems. Answers are provided for you to check; however, you will not be given credit if you don't show work on problems that require it. It is expected that you have a good understanding of this material coming into these courses as teachers will not be doing an extensive review of previously learned material.
In order to receive credit for (1) homework assignment, you must show all appropriate amount of work to solve a problem for each question on separate piece of paper. You must attach your work to the following packet if necessary. During the first week of school, I will provide the solutions to the review packet and a quiz will be given upon review of the packet.

You may email me with any questions at semra.necimo@pcsst.org

Have a great summer and I look forward to seeing you in the fall!

Mrs Necimo

Resources:

Khan Academy (search the topic)
Purple math
Youtube (search the topic)

Solve the equation. Show work.

2) $\frac{2y + 3}{y} = \frac{3}{2}$ 2) _____

3) $1 - \frac{3}{2x} = \frac{7}{4}$ 3) _____

Solve the problem.

4) Yearly sales at a certain department store follow the model $y = 85 - 13.254x$ where y is the total sales in thousands of dollars and x is the number of years after 1992. In what year will the sales first be less than $35,000? 4) _____

Find the slope of the line containing the pair of points.

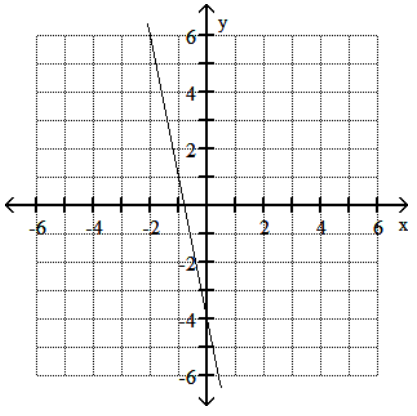
5) (-8, -5), (-3, 2) 5) _____

Find the equation of the line through the given pair of points. Solve it for y if possible.

6) (-7, -6), (-4, 9) 6) _____

Write an equation in slope-intercept form for the line shown.

7) 7) _____

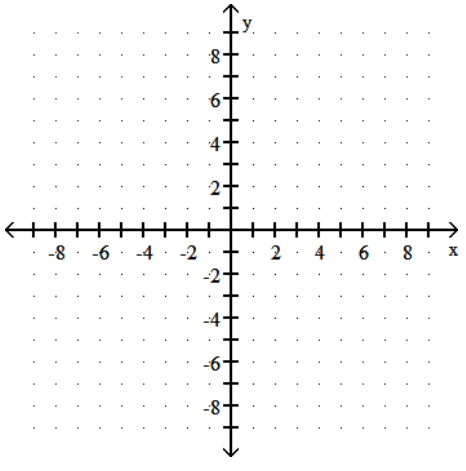


Change the equation to slope-intercept form and identify the slope and y-intercept.

8) 11x + 9y = 15 8) _____

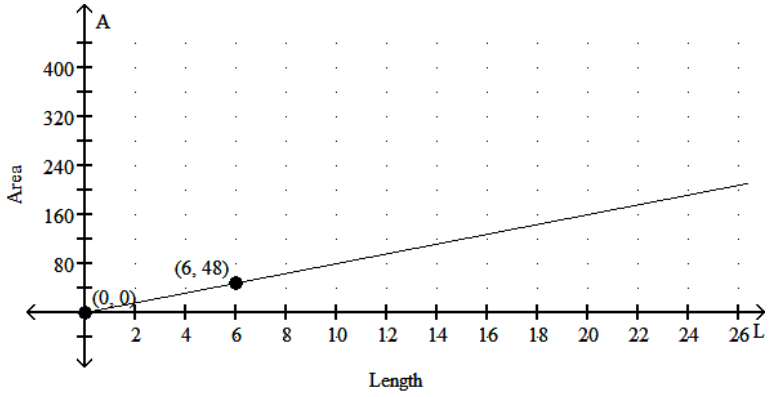
Use the y-intercept and slope to sketch the graph of the equation.

9) y = -4x + 3 9) _____



Solve the problem.

10) The graph shows the relationship between the area A of a rectangle and the length L, if the width is fixed. Find a formula for that function. 10) _____



Use the square root property to find all real or imaginary solutions to the equation.

11) $x^2 - 144 = 0$ 11) _____

12) $(x - 14)^2 = 36$ 12) _____

13) $y^2 = 18$ 13) _____

Solve the equation by factoring.

14) $x^2 + 9x - 22 = 0$ 14) _____

15) $5x^2 + 19x - 4 = 0$ 15) _____

Find the real or imaginary solutions by using the quadratic formula.

16) $x^2 - x = 6$ 16) _____

17) $3x^2 - 18x + 24 = 0$ 17) _____

18) $x^2 = 7 - 4x$ 18) _____

State the value of the discriminant and the number of real solutions.

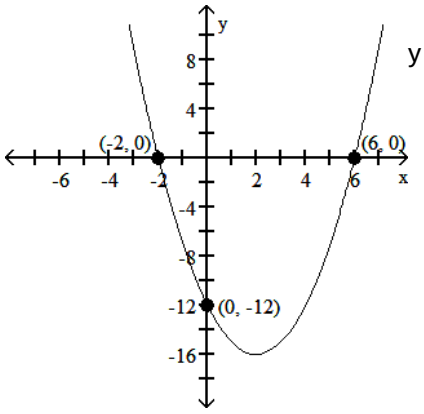
19) $s^2 + 6s + 6 = 0$ 19) _____

20) $s^2 + 4s + 8 = 0$ 20) _____

21) $36x^2 + 12x + 1 = 0$ 21) _____

Find the solutions to the equation by reading the graph.

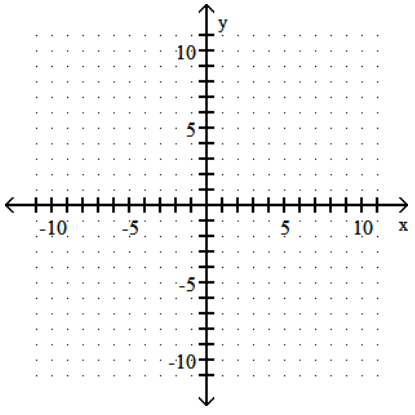
22) $x^2 - 4x - 12 = 0$ 22) _____



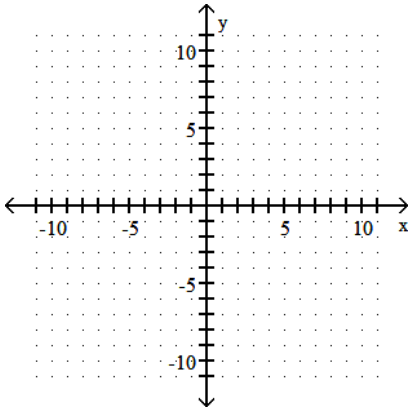
$y = x^2 - 4x - 12$

Graph the given function by creating a table of values or by using the vertex form (h,k). Then state the domain and range of the function.

23) $y = (x + 3)^2$ 23) _____



24) $y = 5(x - 3)^2 + 3$ 24) _____

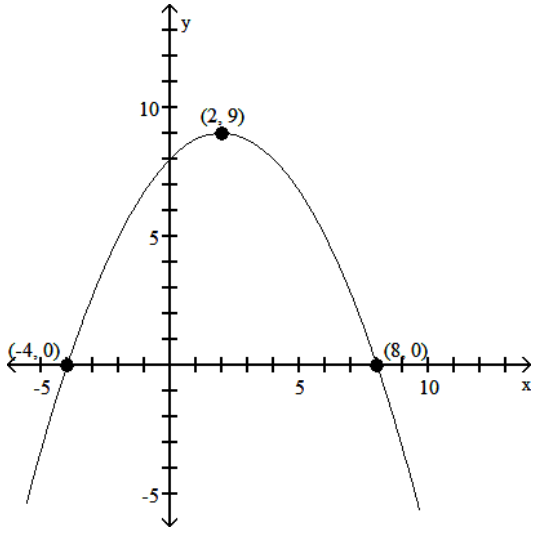


Identify the vertex of the parabola.

25) $y = 2x^2 - 8x + 9$ 25) _____

From the graph of the parabola, determine whether the parabola opens upward or downward, and find the vertex, axis of symmetry, and range of the function. Find the maximum or minimum value of the function and the intervals on which the function is increasing or decreasing.

26) 26) _____



Find the range of the function.

27) $f(x) = x^2 + 8x + 8$ 27) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Write an inequality whose solution set is the interval.

28) $(-\infty, 8]$ 28) _____

A) $x > 8$ B) $x \geq 8$ C) $x < 8$ D) $x \leq 8$

29) $[-2, 8)$ 29) _____

A) $-2 < x \leq 8$ B) $-2 \leq x < 8$ C) $-2 < x > 8$ D) $-2 \leq x \leq 8$

Write the solution set in interval notation.

30) $x \geq -3$ 30) _____

Find the values of x for which the expression is a real number.

31) $\sqrt{8x - 6}$ 31) _____

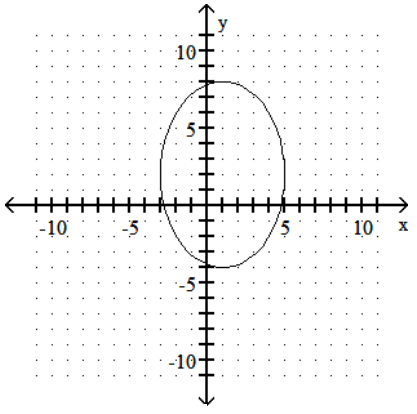
32) $\dfrac{1}{\sqrt{10 - x}}$ 32) _____

Find the maximum or minimum point of the function and state whether it is a maximum or minimum.

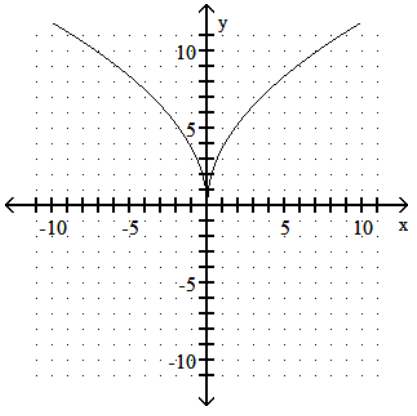
33) $f(x) = x^2 - 10x + 31$ 33) _____

Use the vertical line test to determine whether y is a function of x.

34) 34) _____



35) 35) _____



Determine whether the relation is a function.

36) {(-6, 7), (-3, -1), (3, 4), (3, -1)} 36) _____

37) {(-5, 4), (-1, 3), (1, 4), (6, -5)} 37) _____

Tell whether the graph of the function opens up or down.

38) $P(x) = (x - 5)^2 + 2$ 38) _____

Find the maximum or minimum point of the function and state whether it is a maximum or minimum.

39) $f(x) = - x^2 - 6x - 12$ 39) _____

Find the domain and range.

40) {(-4, 7), (-4, 6), (-9, -2), (-1, -4), (2, 3)} 40) _____

41) $y = 8x^6$ 41) _____

42) $y = \sqrt{3 + x}$ 42) _____

Evaluate.

43) If $f(x) = (x - 7)^2$, find f(3). 43) _____

44) If $f = \{(2, -6), (5, -3), (6, -1)\}$ and $g(x) = 4x + 9$, find f(5) + g(5). 44) _____

45) Find g(a - 1) when g(x) = 4x + 2. 45) _____

46) Find f(a + 3) when $f(x) = x^2 + 5$. 46) _____

Solve the problem.

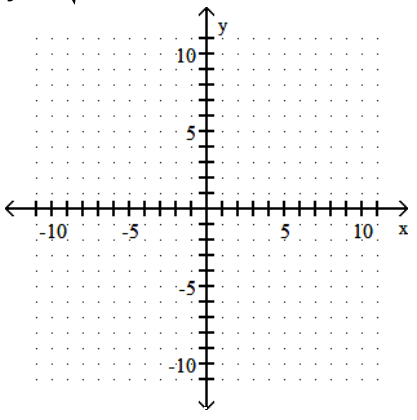
47) In January 1983, Anna starts a new job and makes an annual salary of $38,000. By January 1986 her annual salary has increased to $46,200, and by January 1996 it has increased to $240,200. What is the average rate of change of her salary between January 1986 and January 1996? 47) _____

48) Let C(x) = 600 + 20x be the cost to manufacture x items. Find the average cost per item, to the nearest dollar, to produce 50 items. 48) _____

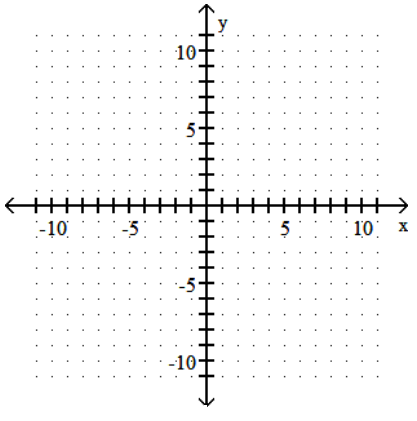
49) Let $R(x) = -19x + 175$ represent the number of students present in a large class, where x represents the number of hours of study required weekly. What is the rate of change of the number of students in the class with respect to the number of hours of study? 49) _____

Graph the equation by using translations. Then state the domain and range of the final function.

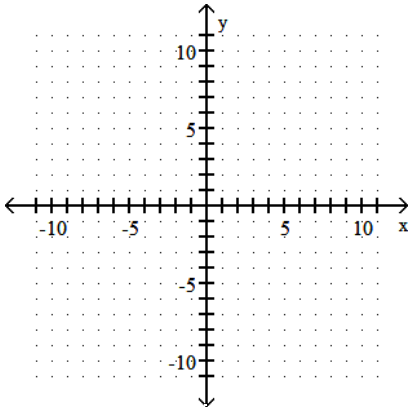
50) $y = \sqrt{x + 2}$ 50) _____



51) $y = 9|x| - 3$ 51) _____



52) $y = -\frac{1}{3}(x - 3)^3 - 1$ 52) _____



Evaluate.

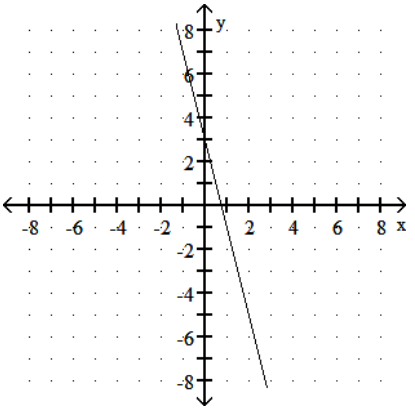
53) Find (f + g)(-3) given f(x) = x + 3 and g(x) = x + 6. 53) _____

54) Find (f/g)(-2) given f(x) = 4x - 6 and $g(x) = 3x^2 + 14x + 5$. 54) _____

55) Given f(x) = 3x - 4 and g(x) = -8x + 8, find (f - g)(x). 55) _____

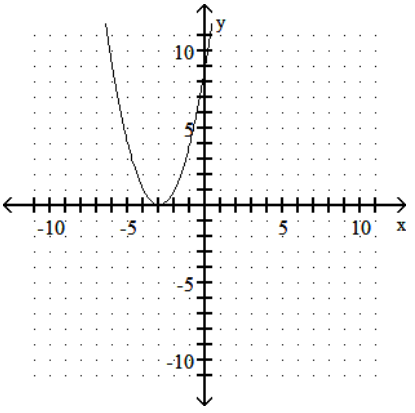
56) Given f(x) = 4x + 4 and $g(x) = x^2 + 6x - 7$, find $(f \cdot g)(x)$. 56) _____

1)
2) Conditional, {-6}
3) Conditional, {-2}
4) 1995
5) $\frac{7}{5}$
6) y = 5x + 29
7) y = -5x - 4
8) $y = -\frac{11}{9}x + \frac{5}{3}$, $-\frac{11}{9}$, $\left(0, \frac{5}{3}\right)$
9)



10) A = 8L
11) {±12}
12) {8, 20}
13) $\{\pm 3\sqrt{2}\}$
14) {-11, 2}
15) $\left\{\frac{1}{5}, -4\right\}$
16) {-2, 3}
17) {2, 4}
18) $\{-2 \pm \sqrt{11}\}$
19) 12, two
20) -16, no real solutions
21) 0, one
22) {-2, 6}

23)



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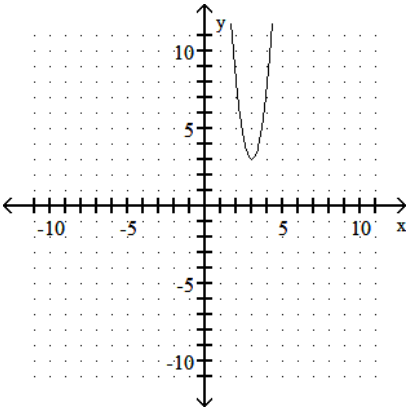


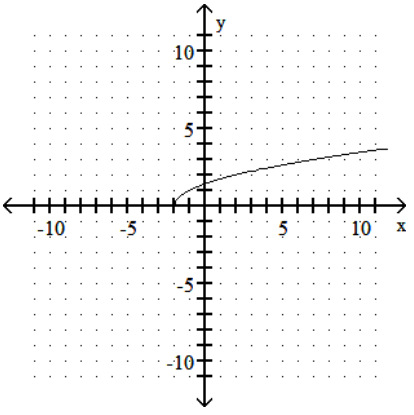
25) (2, 1)
26) Down, (2, 9), x = 2, (∞ , 9], max 9, inc (∞ , 2], dec [2, ∞)
27) [-8, ∞)
28) D
29) B
30) $[-3, \infty)$
31) $\left[\frac{3}{4}, \infty\right)$
32) (-∞, 10)
33) (5, 6); minimum
34) No
35) Yes
36) No
37) Yes
38) up
39) (- 3, - 3); maximum
40) D = {-9, -1, -4, 2}; R = {-2, -4, 6, 3, 7}
41) D = (-∞, ∞); R = [0, ∞)
42) D = [-3, ∞); R = [0, ∞)
43) 16
44) 26
45) 4a - 2
46) $a^2 + 6a + 14$

47) $19,400 per year

48) $32

49) -19

50)



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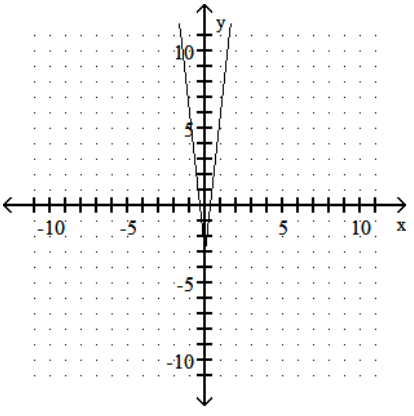
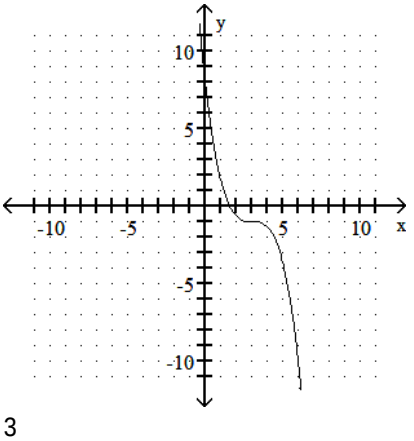


52)



53) 3

54) $\frac{14}{11}$

55) 11x - 12

56) $4x^3 + 28x^2 - 4x - 28$