

Name \_\_\_\_\_

Each of the 19 questions is worth 5 points plus 1 points for each of 5 homework problems for a total of 100

**Find the distance between the pair of points.**

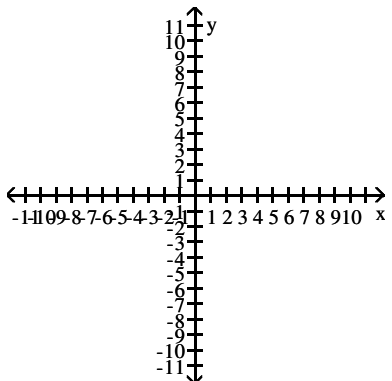
1)  $(-7, 6)$   $(-1, -6)$

**Decide whether or not the points are the vertices of a right triangle.**

2)  $(4, 1)$ ,  $(6, 1)$ ,  $(6, 4)$

**Graph the ellipse.**

3)  $\frac{(x-5)^2}{25} + \frac{(y-5)^2}{9} = 1$

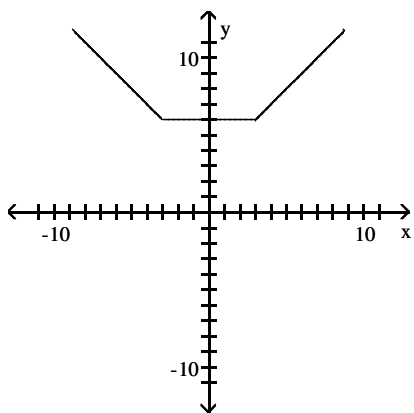


Find the center, foci, and asymptotes of the hyperbola.

4)  $\frac{y^2}{144} - \frac{x^2}{256} = 1$

Determine the intervals over which the function is decreasing, increasing, and constant.

5)



Solve the problem.

6) Find  $f(-2)$  when  $f(x) = x^2 - 2x - 1$

Find the slope of the line satisfying the given conditions.

7)  $(-8, -2)$  and  $(-9, -5)$

**Solve the problem. Round your answer, as needed.**

- 8) A deep sea diving bell is being lowered at a constant rate. After 10 minutes, the bell is at a depth of 300 ft. After 55 minutes the bell is at a depth of 1700 ft. What is the average rate of lowering per minute?

**Write the equation of the line.**

9)  $m = \frac{5}{7}$  (0, 4) is on the line.

- 10) Through (9, -4),  
perpendicular to  $-5x - 4y = -29$

**Solve.**

- 11) A company can make 10 satellite dishes for \$112,800, while 24 satellite dishes cost \$120,920. Let  $y$  be the cost to produce  $x$  satellite dishes.

**Find the requested value.**

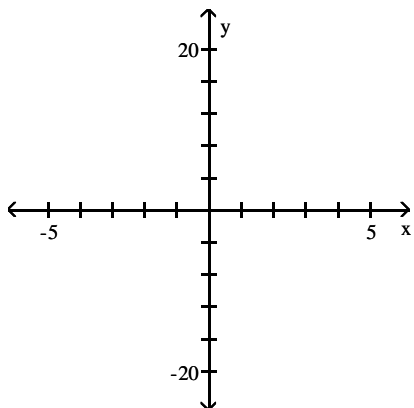
12)

$$f(-9) \text{ for } f(x) = \begin{cases} 6x + 1, & \text{if } x < 9 \\ 9x, & \text{if } 9 \leq x \leq 11 \\ 9 - 6x, & \text{if } x > 11 \end{cases}$$

**Graph the function.**

13)

$$f(x) = \begin{cases} 3x + 2 & \text{if } x < -2 \\ x & \text{if } -2 \leq x \leq 3 \\ 2x - 1 & \text{if } x > 3 \end{cases}$$

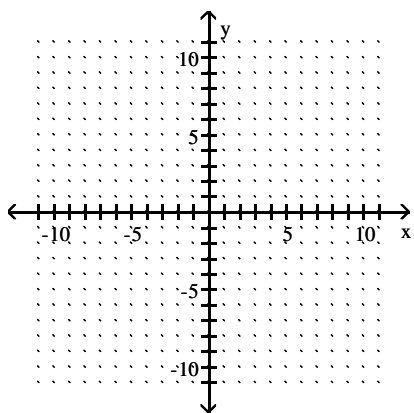


Determine whether the function is symmetric with respect to the y-axis, symmetric with respect to the x-axis, symmetric with respect to the origin, or none of these.

14)  $f(x) = -0.05x^2 + |x| + 8$

Graph the function.

15)  $f(x) = \frac{1}{4}(x - 5)^3 - 2$



Find the equation of the axis of symmetry of the parabola.

16)  $f(x) = (x + 1)^2 + 9$

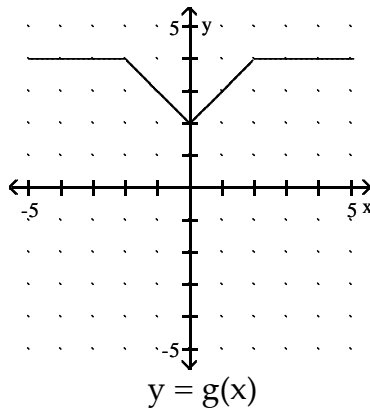
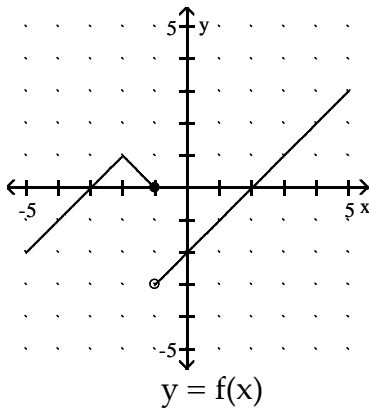
**Perform the requested operation or operations.**

17)  $f(x) = 2x - 9$ ,  $g(x) = 4x - 4$

Find  $(f - g)(x)$ .

**Find the requested value.**

18) The graphs of functions  $f$  and  $g$  are shown. Use these graphs to find  $f(4) - g(-4)$ .



**If  $f$  is one-to-one, find an equation for its inverse.**

19)  $f(x) = -5x + 1$