

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.

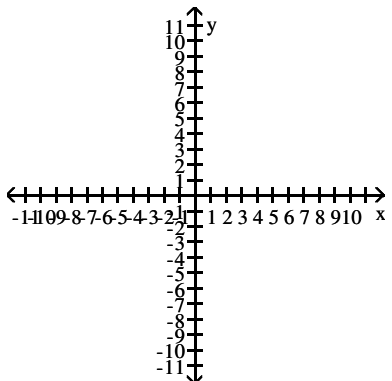
1) $(2, -7)$ $(4, 5)$

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

2) $(3, -6)$, $(12, -6)$, $(12, -2)$

Graph the ellipse.

3) $\frac{(x-4)^2}{64} + \frac{(y-3)^2}{16} = 1$

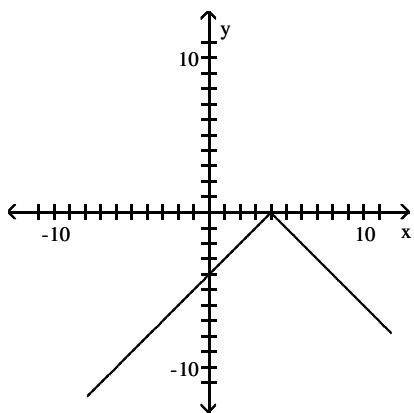


Find the center, foci, and asymptotes of the hyperbola.

$$4) \frac{y^2}{225} - \frac{x^2}{400} = 1$$

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

5)



Solve the problem.

6) Find $f(3)$ when $f(x) = x^2 - 5x - 3$

Find the slope of the line satisfying the given conditions.

7) $(1, -5)$ and $(-8, -2)$

Solve the problem. Round your answer, as needed.

- 8) A deep sea diving bell is being lowered at a constant rate. After 12 minutes, the bell is at a depth of 600 ft. After 35 minutes the bell is at a depth of 1600 ft. What is the average rate of lowering per minute?

Write the equation of the line.

9) $m = \frac{7}{8}$ (0, 3) is on the line.

- 10) Through (7, 9),
perpendicular to $-6x + 7y = 21$

Solve.

- 11) A company can make 9 bridge bulkheads for \$93,700, while 14 bridge bulkheads cost \$96,850. Let y be the cost to produce x bridge bulkheads.

Find the requested value.

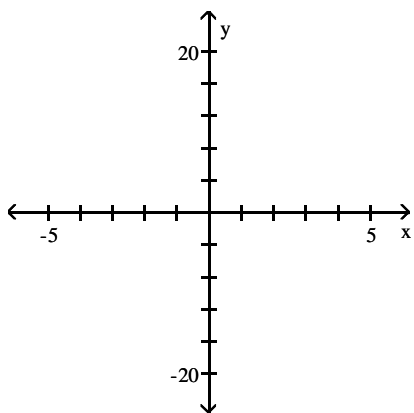
12)

$$f(-8) \text{ for } f(x) = \begin{cases} 3x + 1, & \text{if } x < 8 \\ 8x, & \text{if } 8 \leq x \leq 12 \\ 8 - 7x, & \text{if } x > 12 \end{cases}$$

Graph the function.

13)

$$f(x) = \begin{cases} 4x + 2 & \text{if } x < -2 \\ x & \text{if } -2 \leq x \leq 3 \\ 3x - 1 & \text{if } x > 3 \end{cases}$$

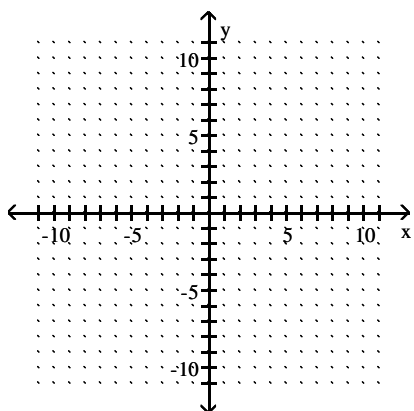


Determine whether the function is symmetric with respect to the y-axis, symmetric with respect to the x-axis, symmetric with respect to the origin, or none of these.

14) $f(x) = -0.20x^2 + |x| - 9$

Graph the function.

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



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

16) $f(x) = (x + 3)^2 + 7$

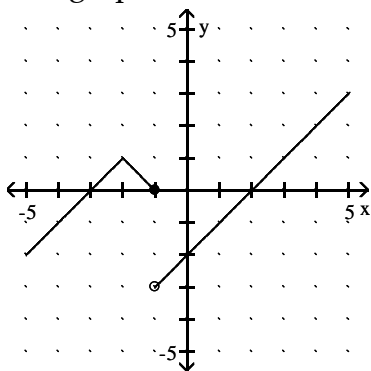
Perform the requested operation or operations.

17) $f(x) = 5x - 5$, $g(x) = 3x - 8$

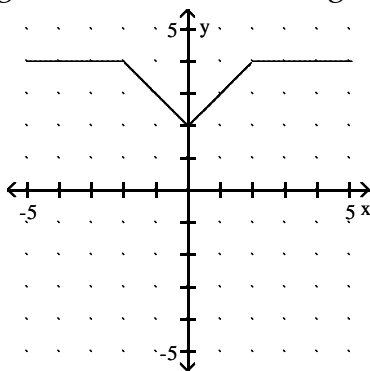
Find $(f - g)(x)$.

Find the requested value.

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



$y = f(x)$



$y = g(x)$

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

19) $f(x) = -7x + 1$