

Chapter 2 Review

State the domain and range of each relation.
Then determine whether each relation is a function.

1) $\{(-3, 0), (0, 2), (2, 4), (4, 5), (2, 1)\}$

2)

x	y
-2	3
4	-1
3	2
6	3

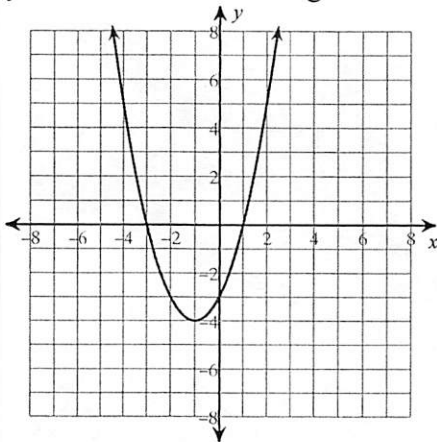
Domain:
Range:

Domain:
Range:

Identify the x- and y-intercepts from the function and state the domain and range. Using interval notation.

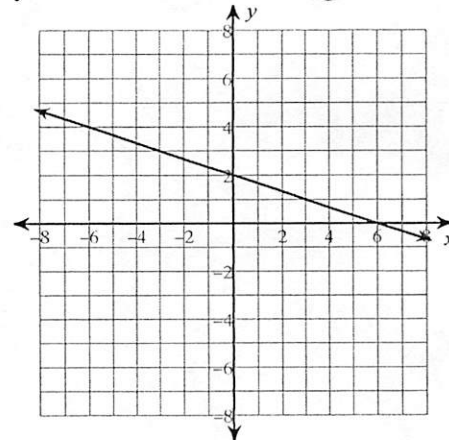
3) x-int:
y-int:

Domain:
Range:



4) x-int:
y-int:

Domain:
Range:



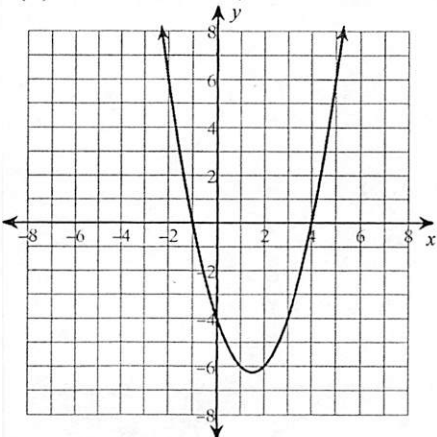
Evaluate each function.

5) $h(t) = 3t - 1$; Find $h(-10)$

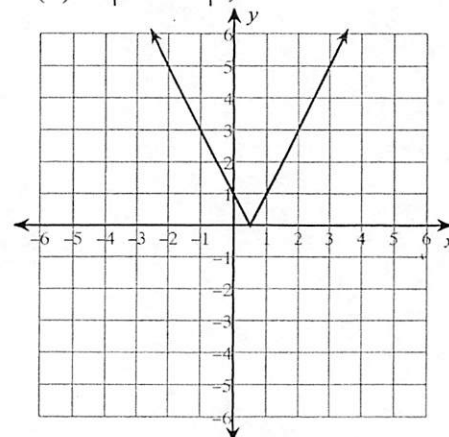
6) $p(x) = 2x^2 + 4x$; Find $p(8)$

For each problem, find the average rate of change of the function over the given interval.

7) $f(x) = x^2 - 3x - 4$; $x = -1$ to $x = 2$



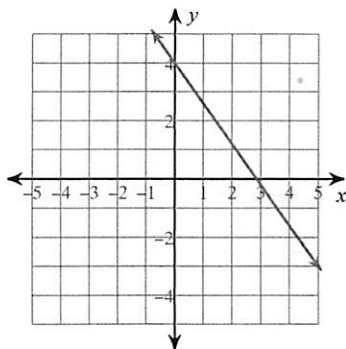
8) $f(x) = |2x - 1|$; $x = -2$ to $x = 1$



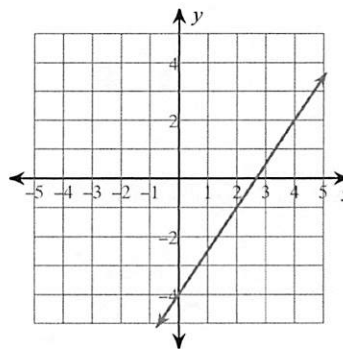
9) A rocket is 1 mile above the earth in 30 seconds and 5 miles above the earth in 2.5 minutes. What is the rockets rate of change in miles per second? What about miles per minute.

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

10)



11)



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

12) through: $(-1, 2)$, slope = -6

13) through: $(-2, -1)$, slope = $\frac{5}{2}$

14) through: $(2, -3)$, slope = $-\frac{5}{2}$

15) through: $(2, -4)$, slope = -3

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

16) through: $(-4, -4)$, parallel to $y = \frac{7}{4}x - 3$

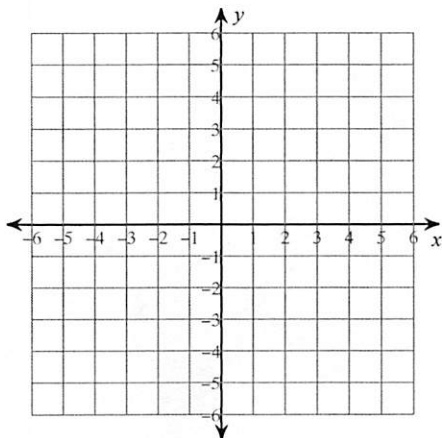
17) through: $(3, 4)$, perp. to $y = -3x - 3$

18) You are visiting Baltimore, MD and a taxi cab company charges a flat fee of \$3 for using the taxi and \$0.75 per mile.

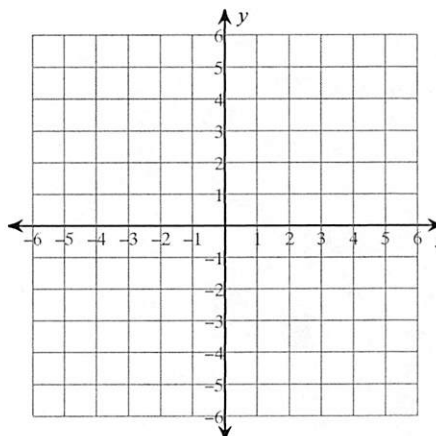
- Write an equation in slope intercept form that you could use to find the cost of a taxi ride. Let x represent the number of miles driven and y represent the total cost.
- How much would it cost to go 8 miles?

Sketch the graph of each line and Identify the domain and range using interval notation.

19) $3x + 4y = -8$

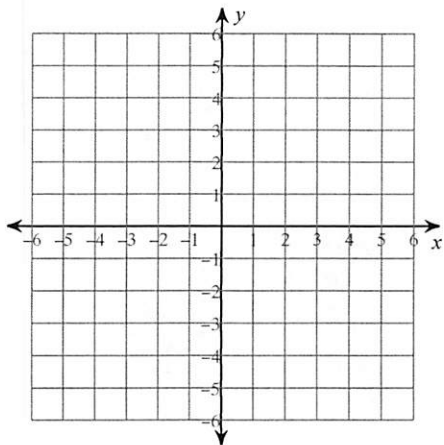


20) $y = -\frac{1}{3}x - 4$

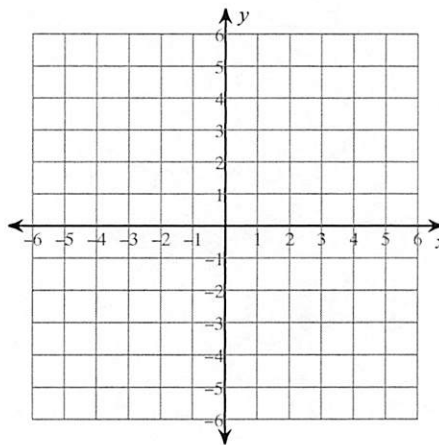


Sketch the graph of each function and Identify the domain and range using interval notation.

21) $y = 3|x + 3| - 4$

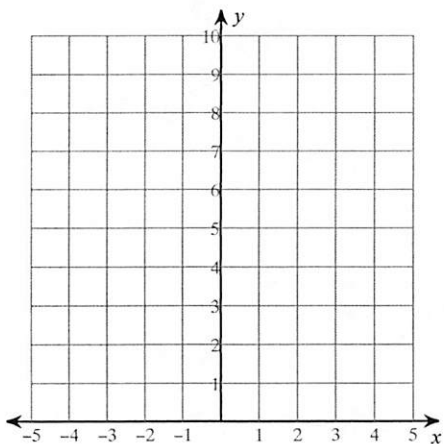


22) $y = -|x| + 2$

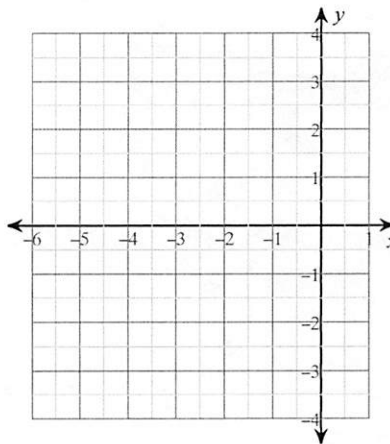


Sketch the graph of each function and state the domain and range of each. Using interval notation.

23) $f(x) = 2(x - 3)^2 + 1$

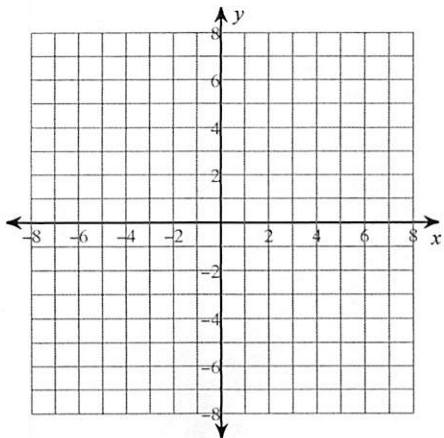


24) $f(x) = -(x + 4)^2 + 2$

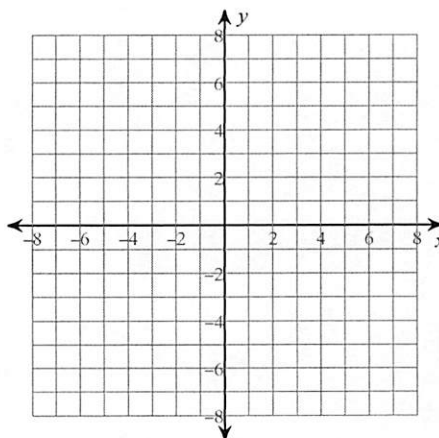


Sketch the graph of each function, Identify the domain and range of each using interval notation.

25) $y = \sqrt{x + 1} - 4$

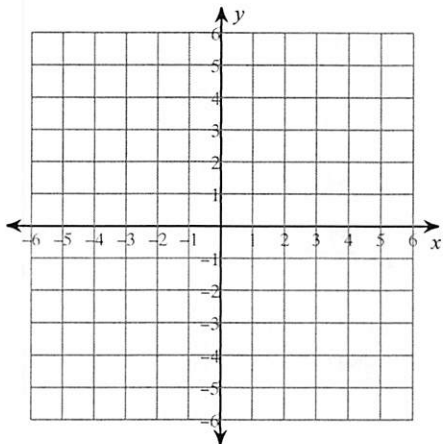


26) $y = \frac{1}{2}\sqrt{x - 1} - 4$

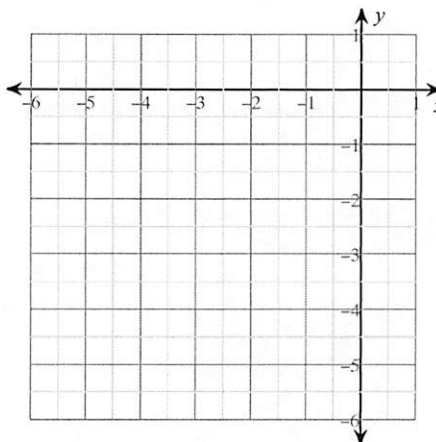


Sketch the graph of each inequality.

27) $y \leq 3x + 2$

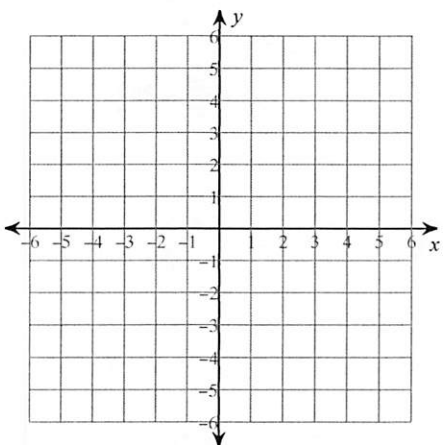


28) $y > -\frac{1}{2}(x + 4)^2 - 2$

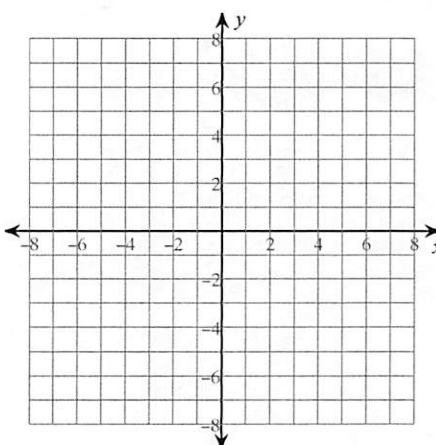


Graph each inequality.

29) $y \leq -2|x - 1| - 4$

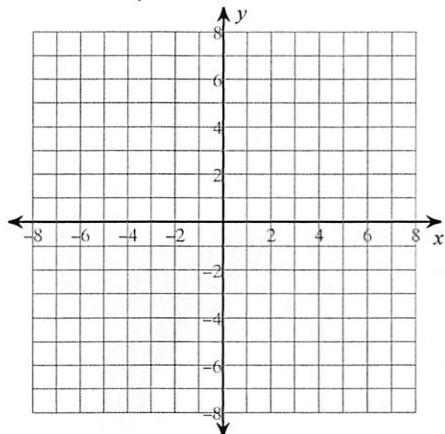


30) $y > \sqrt{x + 2}$

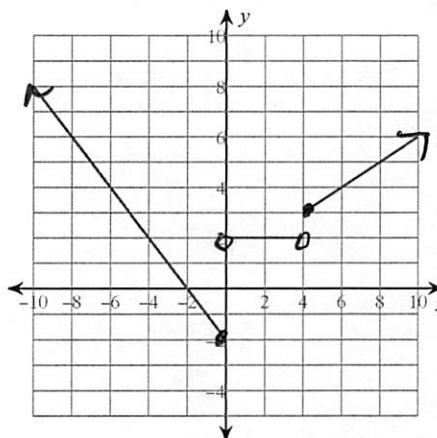


Graph the piecewise function:

$$31) f(x) = \begin{cases} \frac{1}{2}x - 1, & x \leq 0 \\ 4, & 0 < x < 2 \\ 3x, & x \geq 2 \end{cases}$$



32) Write the piecewise function shown in the graph.



Chapter 2 Review

State the domain and range of each relation. Then determine whether each relation is a function.

1) $\{(-3, 0), (0, 2), (2, 4), (4, 5), (2, 1)\}$

Not a function

Domain: $\{-3, 0, 2, 4\}$
 Range: $\{0, 1, 2, 4, 5\}$

2)

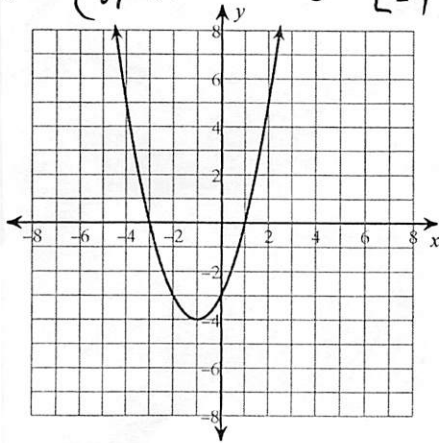
x	y
-2	3
4	-1
3	2
6	3

Yes a function

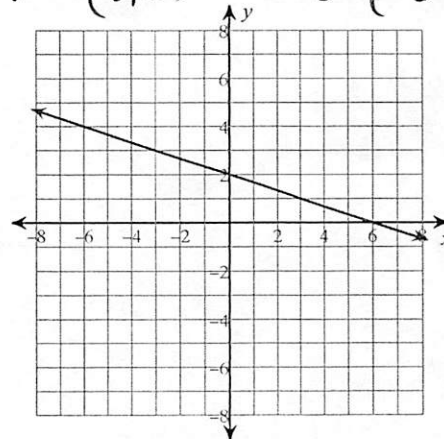
Domain: $\{-2, 3, 4, 6\}$
 Range: $\{-1, 2, 3\}$

Identify the x- and y-intercepts from the function and state the domain and range. Using interval notation.

3) x-int: $(-3, 0), (1, 0)$ Domain: $(-\infty, \infty)$
 y-int: $(0, -3)$ Range: $[-4, \infty)$



4) x-int: $(6, 0)$ Domain: $(-\infty, \infty)$
 y-int: $(0, 2)$ Range: $(-\infty, \infty)$



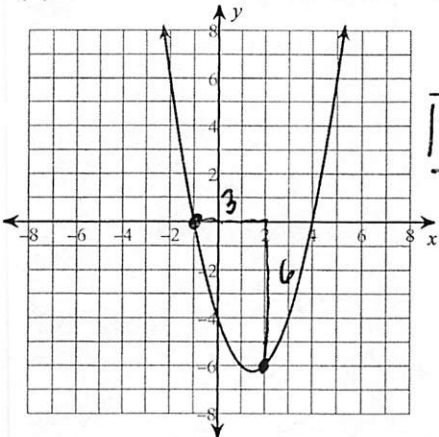
Evaluate each function.

5) $h(t) = 3t - 1$; Find $h(-10)$
 $h(-10) = 3(-10) - 1 = -31$

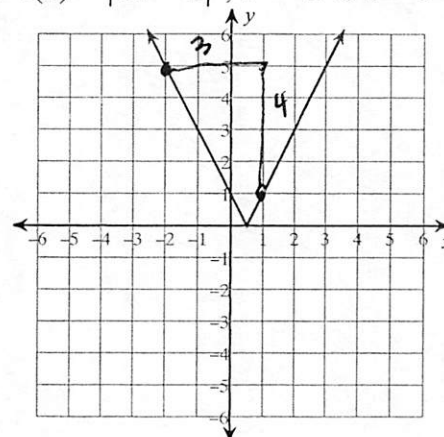
6) $p(x) = 2x^2 + 4x$; Find $p(8)$
 $p(8) = 2(8)^2 + 4(8) = 160$

For each problem, find the average rate of change of the function over the given interval.

7) $f(x) = x^2 - 3x - 4$; $x = -1$ to $x = 2$



8) $f(x) = |2x - 1|$; $x = -2$ to $x = 1$



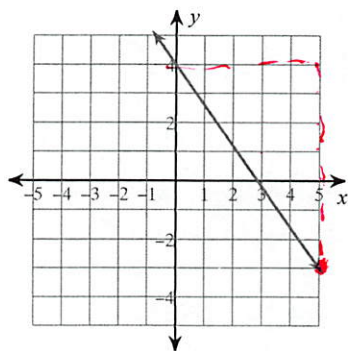
9) A rocket is 1 mile above the earth in 30 seconds and 5 miles above the earth in 2.5 minutes. What is the rocket's rate of change in miles per second? What about miles per minute.

$\frac{5-1}{150-30} = \frac{4}{120}$ 1 mile per 30 sec

$\frac{5-1}{2.5-.5} = \frac{4}{2}$ 2 miles/min

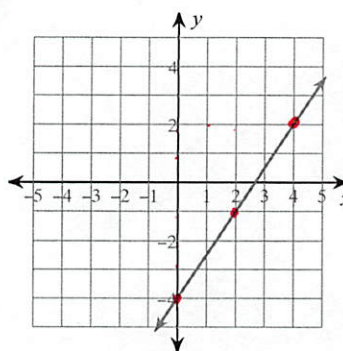
Write the slope-intercept form of the equation of each line.

10)



$$y = -\frac{6}{5}x + 4$$

11)



$$y = \frac{3}{2}x - 3$$

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

12) through: $(-1, 2)$, slope = -6

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

$$y - 2 = -6x - 6$$

$$y = -6x - 4$$

13) through: $(-2, -1)$, slope = $\frac{5}{2}$

$$y + 1 = \frac{5}{2}(x + 2)$$

$$y + 1 = \frac{5}{2}x + 5$$

$$y = \frac{5}{2}x + 4$$

14) through: $(2, -3)$, slope = $-\frac{5}{2}$

$$y = -\frac{5}{2}x + 2$$

15) through: $(2, -4)$, slope = -3

$$y = -3x + 2$$

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

16) through: $(-4, -4)$, parallel to $y = \frac{7}{4}x - 3$

$$y = \frac{7}{4}x + 3$$

17) through: $(3, 4)$, perp. to $y = -3x - 3$

$$y = \frac{1}{3}x + 3$$

18) You are visiting Baltimore, MD and a taxi cab company charges a flat fee of \$3 for using the taxi and \$0.75 per mile.

a) Write an equation in slope intercept form that you could use to find the cost of a taxi ride. Let x represent the number of miles driven and y represent the total cost.

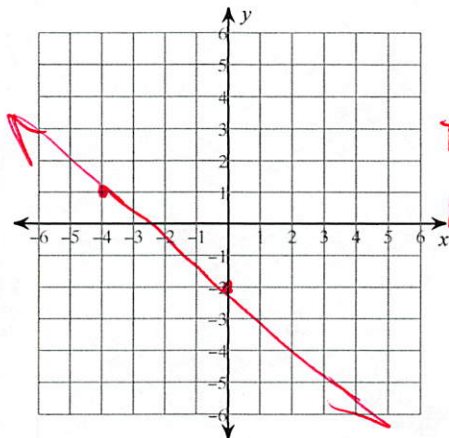
$$y = .75x + 3$$

b) How much would it cost to go 8 miles?

\$9

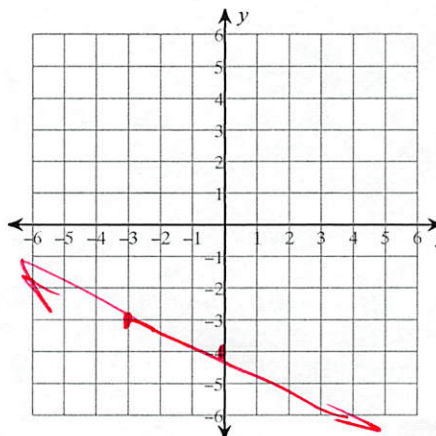
Sketch the graph of each line and identify the domain and range using interval notation.

19) $3x + 4y = -8$



D: $(-\infty, \infty)$
R: $(-\infty, \infty)$

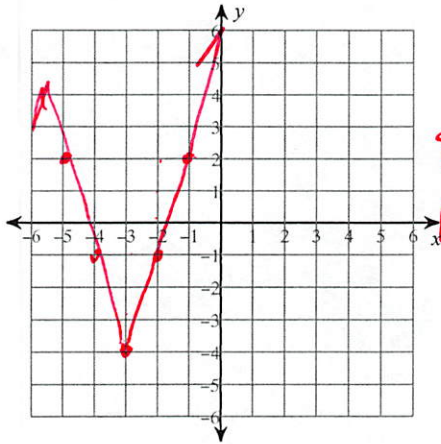
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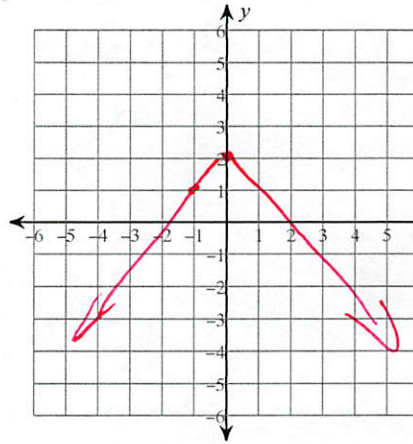
Sketch the graph of each function and Identify the domain and range using interval notation.

21) $y = 3|x + 3| - 4$



$D: (-\infty, \infty)$
 $R: [-4, \infty)$

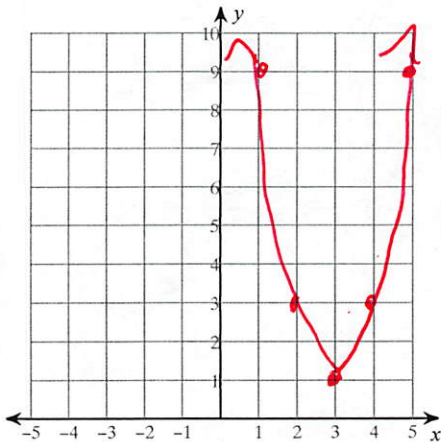
22) $y = -|x| + 2$



$D: (-\infty, \infty)$
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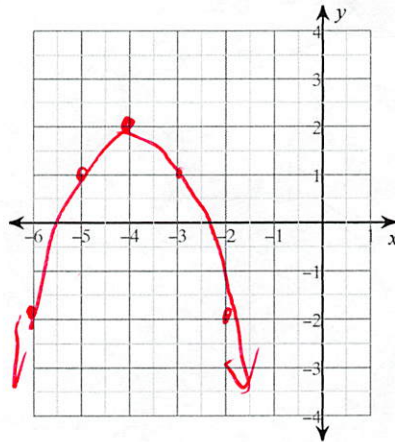
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23) $f(x) = 2(x - 3)^2 + 1$



$D: (-\infty, \infty)$
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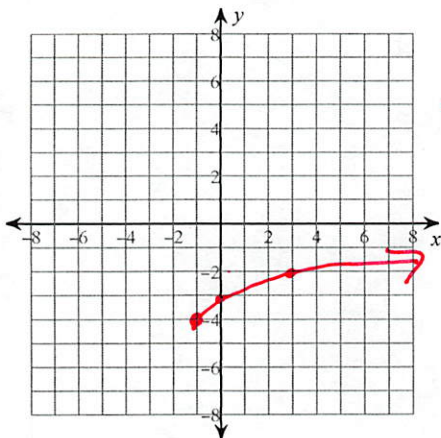
24) $f(x) = -(x + 4)^2 + 2$



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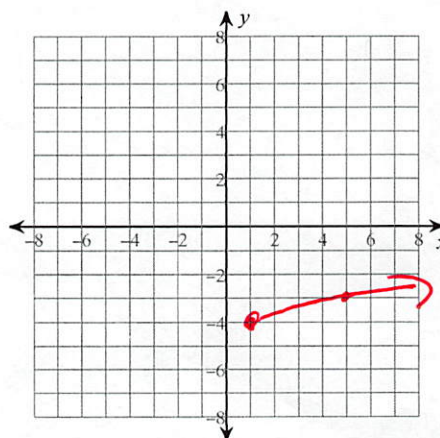
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25) $y = \sqrt{x + 1} - 4$



$D: [-1, \infty)$
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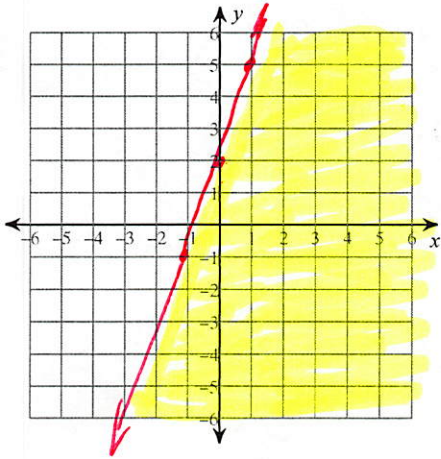
26) $y = \frac{1}{2}\sqrt{x - 1} - 4$



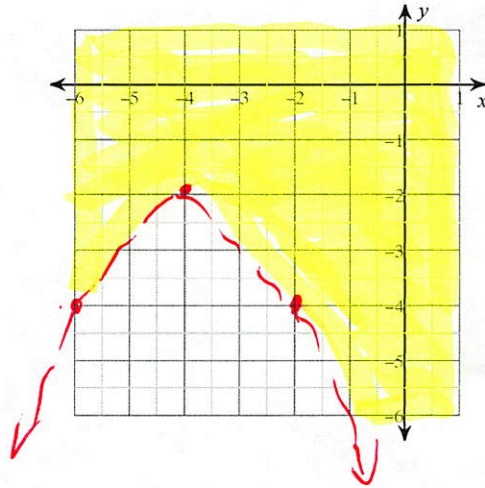
$D: [1, \infty)$
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Sketch the graph of each inequality.

27) $y \leq 3x + 2$

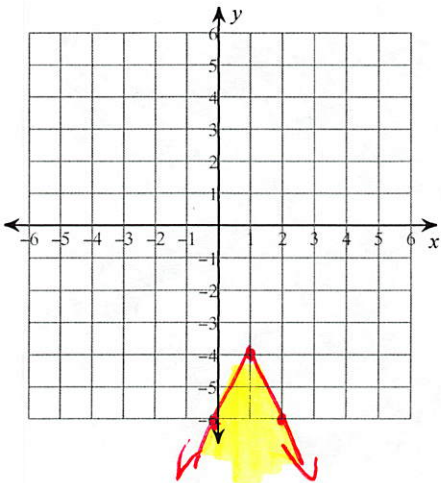


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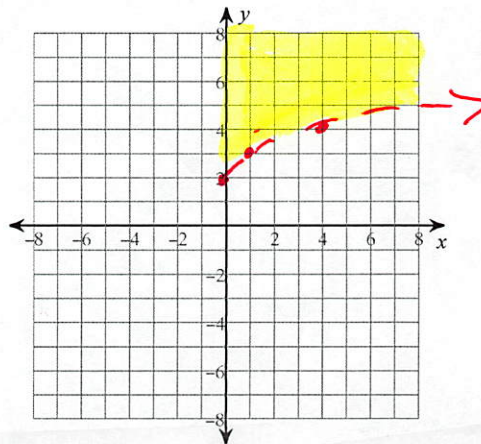


Graph each inequality.

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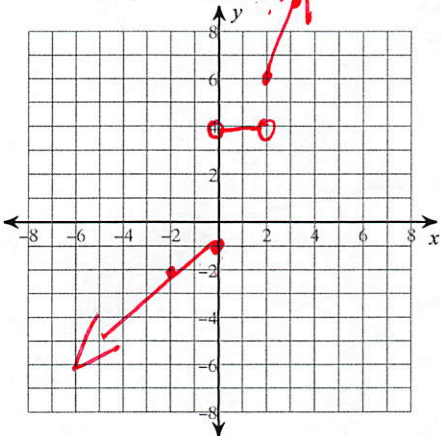


30) $y > \sqrt{x + 2}$

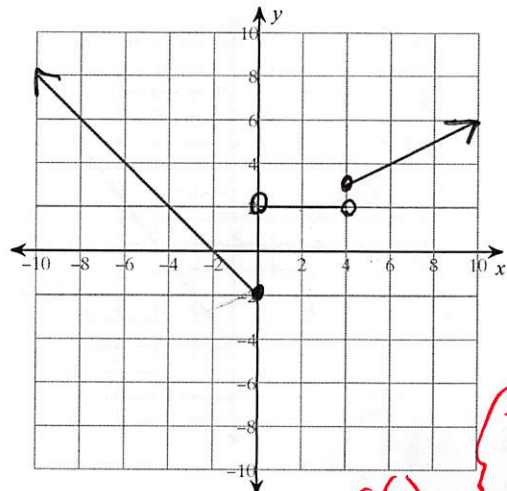


Graph the piecewise function:

$$31) f(x) = \begin{cases} \frac{1}{2}x - 1, & x \leq 0 \\ 4, & 0 < x < 2 \\ 3x, & x \geq 2 \end{cases}$$



32) Write the piecewise function shown in the graph.



$$f(x) = \begin{cases} -x - 2 & x \leq 0 \\ 2 & 0 < x < 4 \\ \frac{1}{2}x + 1 & x \geq 4 \end{cases}$$