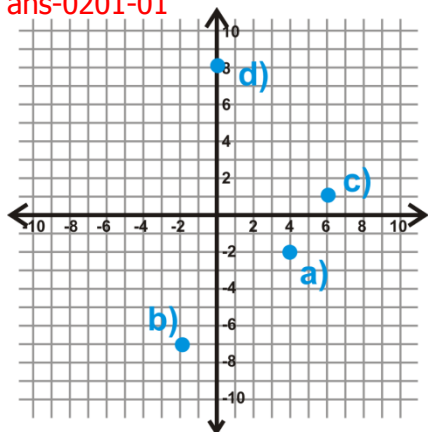


Linear Equations and Functions

Finding the Slope and Equation of a Line

Review Queue Answers

1. ans-0201-01



2. $x = \frac{4}{3}y + 4$

3. $y = \frac{3}{4}x - 3$

4. $b = -\frac{5}{2}c - 5$

5. $c = -\frac{2}{5}b - 2$

Finding Slope

1. 2

2. $-\frac{1}{3}$

3. $\frac{2}{3}$

4. undefined

5. $\frac{2}{5}$

6. -5

7. -3

8. 0

9. $\frac{1}{3}$

10. undefined

11. $-\frac{1}{6}$

12. $-\frac{4}{3}$

13. 2

14. $-\frac{2}{5}$

15. 4

16. (3, -1)

Finding the Equation of a Line in Slope-Intercept Form

1. $y = 2x + 3$

2. $y = -\frac{1}{4}x + 2.6$

3. $y = -x + 2$

4. $y = -\frac{5}{2}x - 5$

5. $y = \frac{2}{3}x - 8$

6. $y = -\frac{3}{4}x + \frac{7}{2}$

7. $y = -3x - 10$

8. $y = x + 2$

9. $y = -\frac{1}{2}x + \frac{3}{2}$

10. $y = \frac{3}{5}x - 4$

11. $y = -\frac{1}{3}x + 7$

12. $y = 5x - 1$

13. $y = -5x + 14$

14. $y = 3x + 10$

15. $y = -\frac{3}{4}x - \frac{21}{4}$

16. $y = \frac{1}{6}x - \frac{49}{6}$

17. $y = -3$

18. $y = 5$

19. $y = b$

20. $x = a$

Standard Form of a Line

Review Queue Answers

1. $y = 4x - 6$

2. $y = \frac{1}{2}x - \frac{3}{2}$

3. $m = -\frac{2}{3}, b = (0, 5)$

4. Answers will vary. Parallel: two lines that never intersect, lines with the same slope. Perpendicular: two lines that intersect at 90° (or right angle),.

Standard Form

1. $2x + 3y = 12$

2. $x - y = 5$

3. $x - 5y = 5$

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

5. $y = \frac{1}{2}x - \frac{9}{2}$

6. $y = \frac{2}{3}x - 5$

7. $(4, 0), (0, 3)$

8. $\left(\frac{4}{3}, 0\right), (0, -8)$

9. $\left(-\frac{16}{3}, 0\right), (0, -2)$

10. $2x - y = 11$

11. $x - 2y = 0$

12. $3x - 2y = -14$

13. $x - 5y = 20$

14. $x + y = 3$

15. $8x + 5y = -40$

16. $y = -\frac{A}{B}x + \frac{C}{B}$

17. $m = -\frac{A}{B}, b = \frac{C}{B}$

18. There are infinitely many possibilities. One possible answer is $x - 2y = 8$.

19. $-\frac{2}{25}$

20. $y = 50x + 8500; 8850$

Finding the Equation of Parallel Lines

1. $y = x + 3$

2. $y = -2$

3. $y = \frac{1}{3}x + 4$

4. $x = 1$

5. $y = \frac{1}{4}x - 2$

6. $y = -3x - 32$

7. $y = -\frac{1}{4}x + \frac{3}{4}$

8. $y = -\frac{2}{5}x - \frac{26}{5}$

9. $y = 2x - 1$

10. $y = \frac{1}{6}x - 7$

11. $y = \frac{1}{2}x + 1$

12. yes

13. no

14. no

15. yes

Finding the Equation of Perpendicular Lines

1. $y = -x + 11$

2. $x = -6$

3. $y = 3x - 7$

4. $y = -9$

5. $y = -4x + 6$

6. $y = \frac{1}{3}x$

7. $y = 6x - 18$

8. $y = \frac{5}{2}x - \frac{51}{2}$

9. $y = -\frac{1}{2}x + \frac{7}{2}$

10. $y = -6x + 8$

11. $y = 3x + 11$

12. perpendicular

13. parallel

14. perpendicular

15. neither

Graphing Lines

Review Queue Answers

1. $y = 3x + 2$

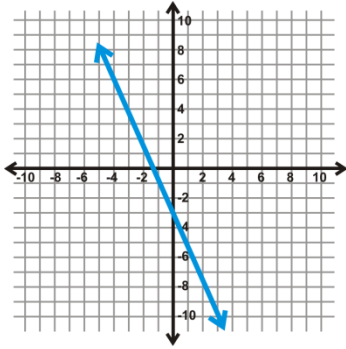
2. $y = \frac{2}{3}x - 2$

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

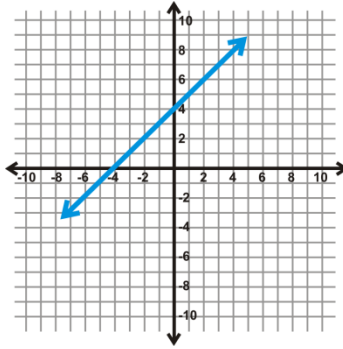
4. a) $(5, 0)$ and $(0, -3)$ b) $(3, 0)$ and $\left(0, -\frac{24}{5}\right)$

Graph a Line in Slope-Intercept Form

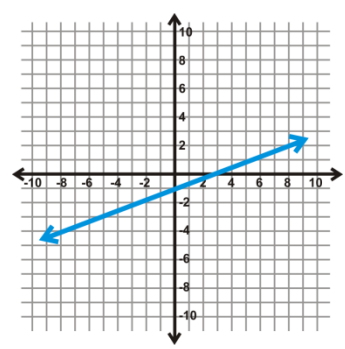
1. **ans-0203-01**



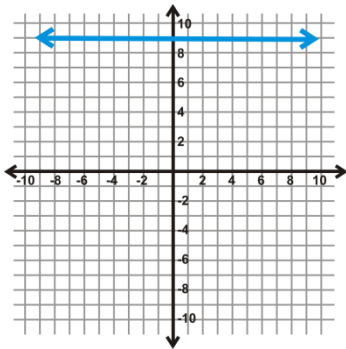
2. **ans-0203-02**



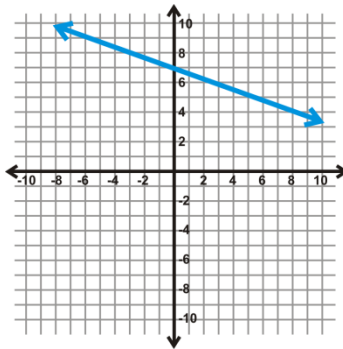
3. **ans-0203-03**



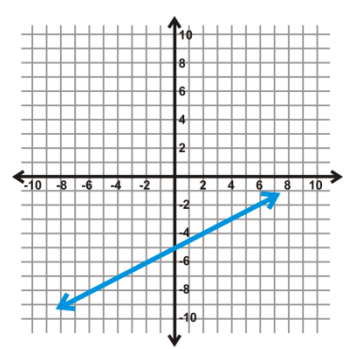
4. **ans-0203-04**



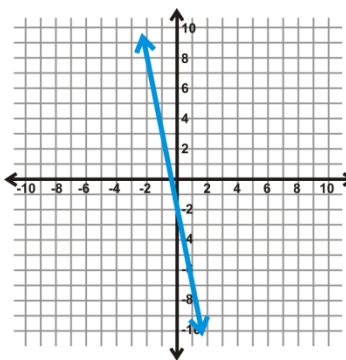
5. **ans-0203-05**



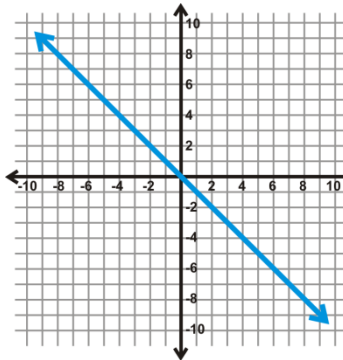
6. **ans-0203-06**



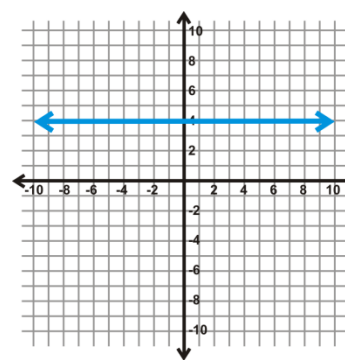
7. **ans-0203-07**



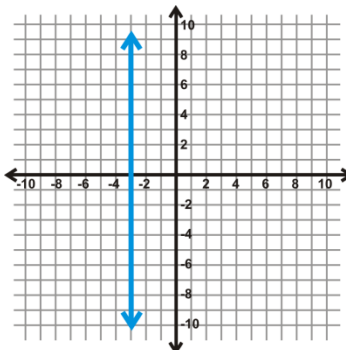
8. **ans-0203-08**



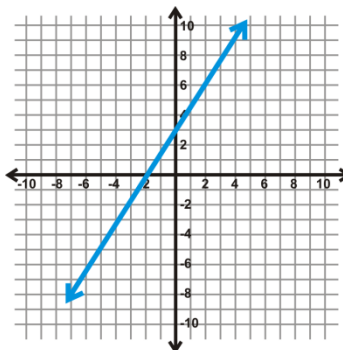
9. **ans-0203-09**



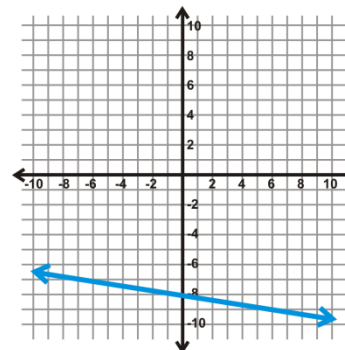
10. **ans-0203-10**



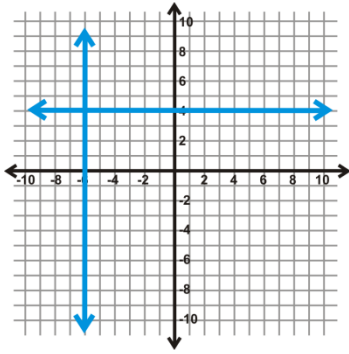
11. **ans-0203-11**



12. **ans-0203-12**



13. $(-6, 4)$ ans-0203-13

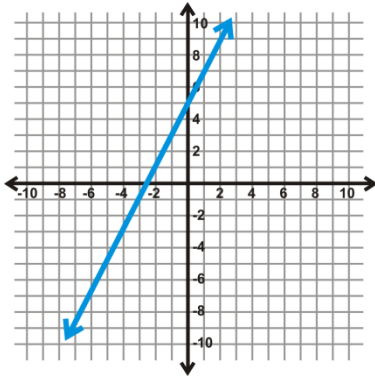


14. (a, b)

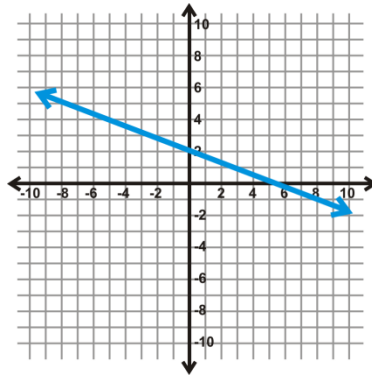
15. \$175

Graph a Line in Standard Form

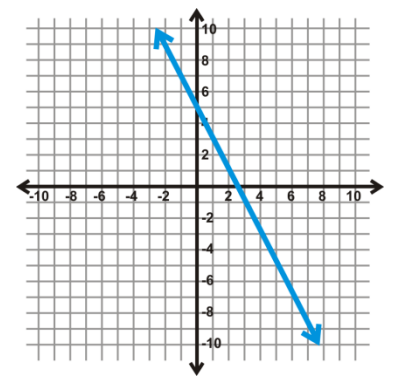
1. ans-0203-14



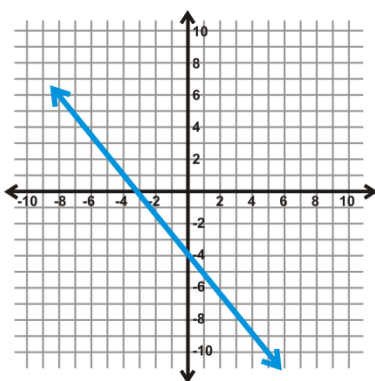
2. ans-0203-15



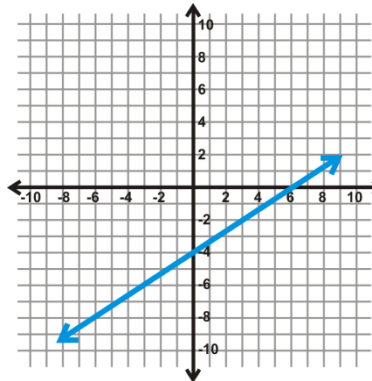
3. ans-0203-16



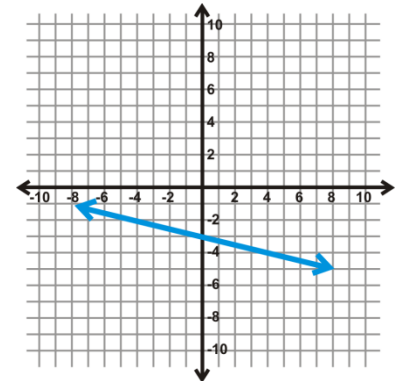
4. ans-0203-17



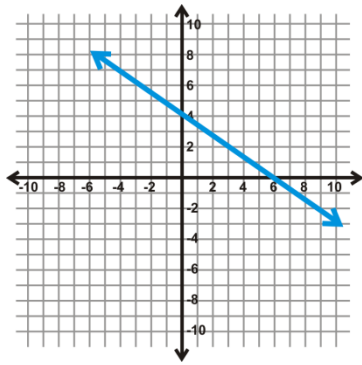
5. ans-0203-18



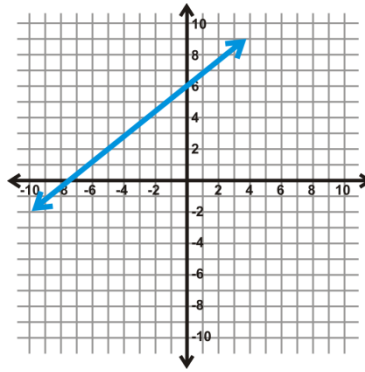
6. ans-0203-19



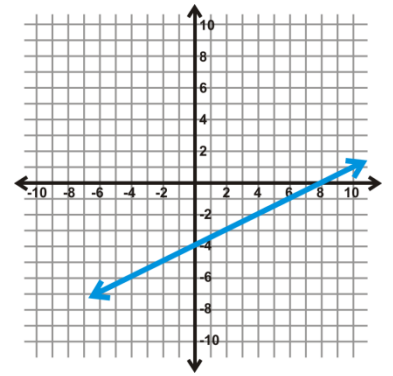
7. ans-0203-20



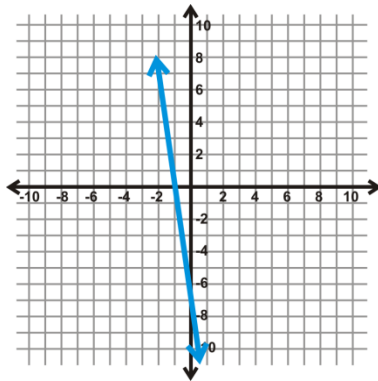
8. ans-0203-21



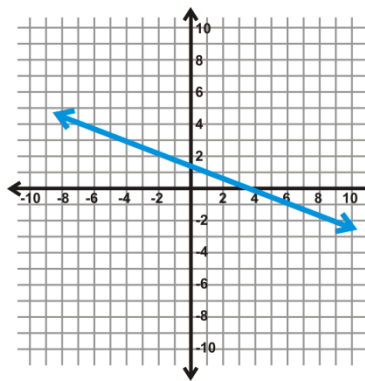
9. ans-0203-22



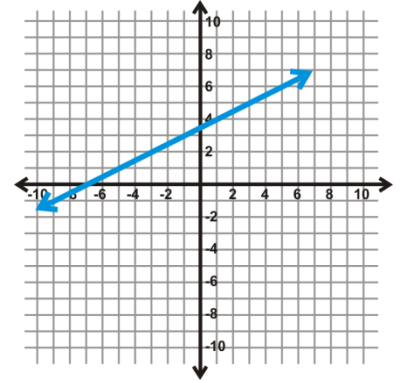
10. ans-0203-23



11. ans-0203-24



12. ans-0203-25

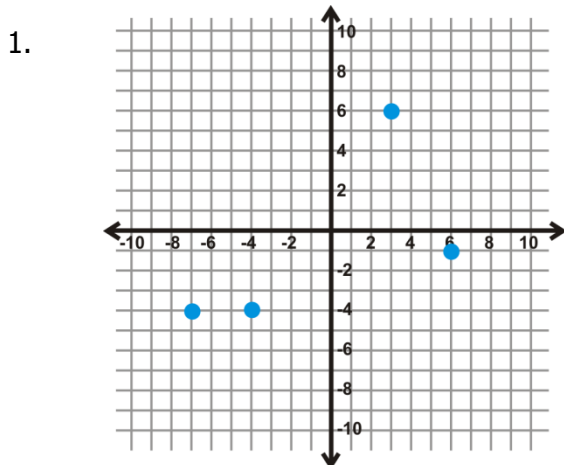


13. For standard form, students might say it is easier to find the intercepts to graph the line. However, answers could vary. Some might like the consistency of doing the problems in the same manner, regardless of what form it is in.

14. Because this is a vertical line, it cannot be changed into slope intercept form. Students should recognize that the -5 is the x-intercept and the only intercept. So, students should use the intercepts to graph this line.

Relations and Functions

Review Queue Answers



2. $y = -\frac{1}{2}x + 4$

3. $y = 2x + 6$

4. $y = 2x - 23$

5. They are perpendicular to each other.

ans-0204-01

Defining Relations and Functions

1. yes
2. no
3. no
4. yes
5. no
6. yes
7. no
8. yes
9. no
10. yes
11. yes
12. no
13. no
14. yes
15. no
16. yes
17. yes
18. yes
19. yes
20. no, a vertical line would touch another vertical line (from the Vertical Line Test) in infinitely many places.
21. All lines, except vertical lines, are functions.

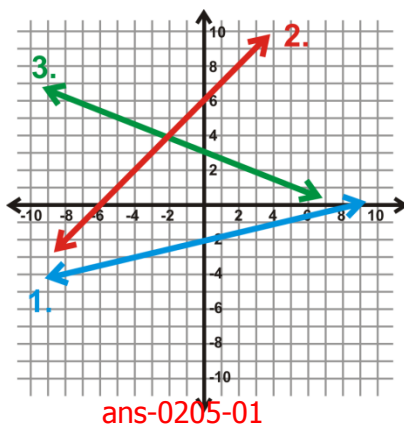
Finding the Domain and Range of Functions

1. Domain: $x \in \{5, -1, 7, 0\}$, Range: $y \in \{6, 5, -3, 9\}$
2. Not a function.
3. Not a function .
4. Domain: $x \in \{-1, -6, 10, 8\}$, Range: $y \in \{2, 3, 7, 11\}$
5. Domain: $x \in \square$, Range: $y \in \square$
6. Domain: $x \in \square$, Range: $y \in \square$
7. Domain: $x \in \square$, Range: $y \in (-\infty, 8]$
8. Domain: $x \in \square$, Range: $y \in \square$
9. Domain: $x \in \square$, Range: $y \in [-2, 2]$
10. Domain: $x \in (-\infty, -5) \cup [1, \infty)$, Range: $y \in \square$
11. Domain: $x \in (-\infty, 3] \cup [6, \infty)$, Range: $y \in (-\infty, 6]$
12. Domain: $x \in (-\infty, -7) \cup (-5, 2] \cup [5, \infty)$, Range: $y \in (-\infty, 0) \cup (1, 3] \cup [4, \infty)$

Graphing Linear Inequalities in Two Variables

Review Queue Answers

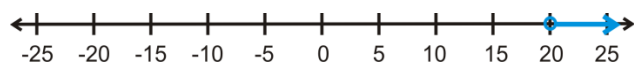
1-3.



4. $x \leq 4$ ans-0205-02



5. $x > 20$ ans-0205-03



6. $x \leq 4$ ans-0205-02

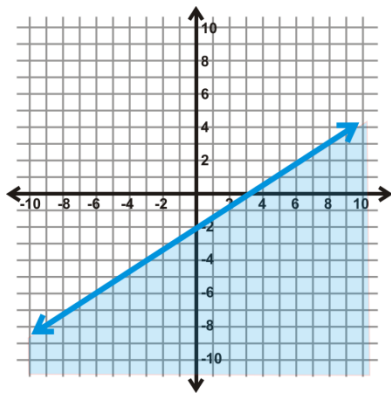


Testing Solutions for Linear Inequalities in Two Variables

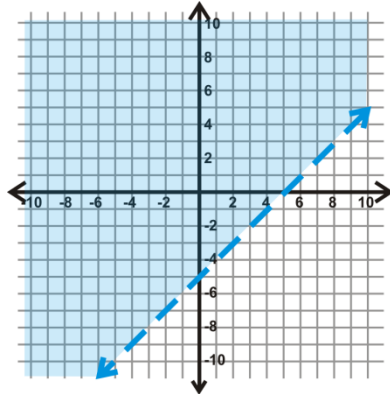
1. all
2. C, D
3. D
4. A, C
5. D
6. A, C
7. C
8. A, C
9. no
10. yes
11. Possible answers: (3, 1), (4, 0), (5, -1)
12. Possible answers: (1, 5), (-2, 1), (-1, 0)

Graphing Linear Inequalities in Two Variables

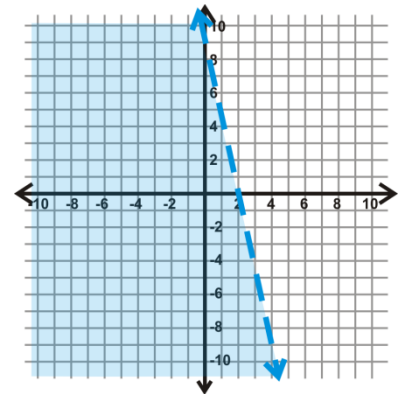
1. ans-0205-04



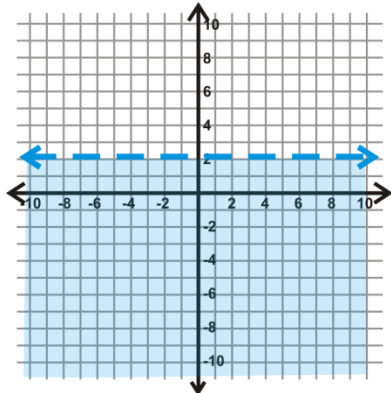
2. ans-0205-05



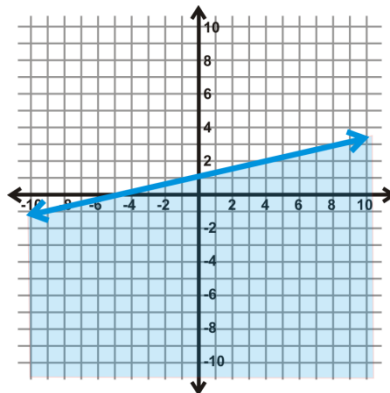
3. ans-0205-06



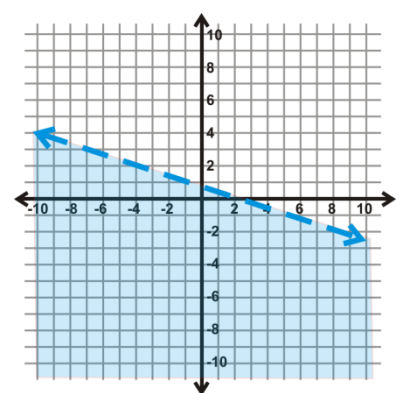
4. ans-0205-07



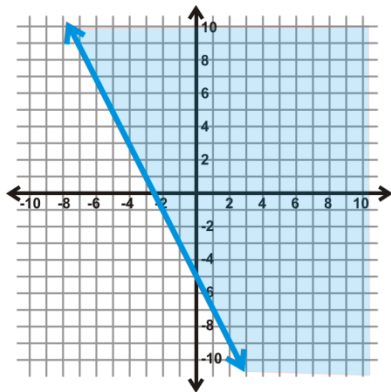
5. ans-0205-08



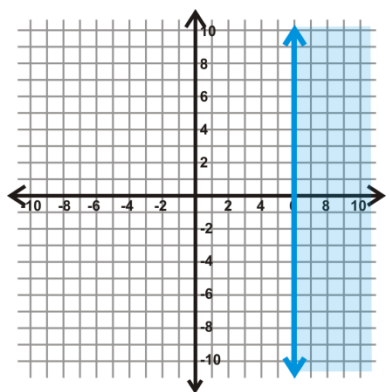
6. ans-0205-09



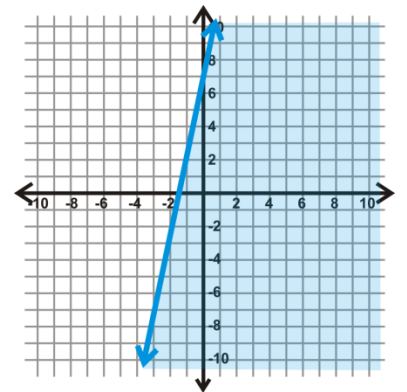
7. ans-0205-10



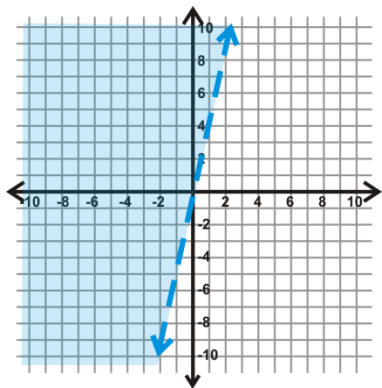
8. ans-0205-11



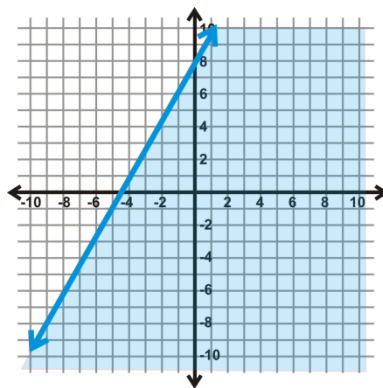
9. ans-0205-12



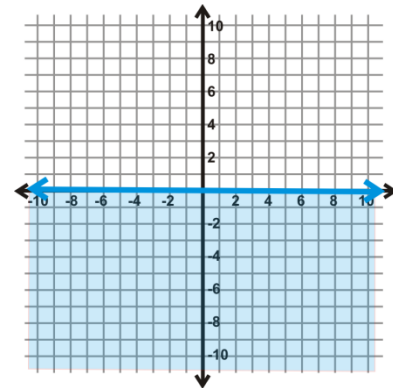
10. ans-0205-13



11. ans-0205-14



12. ans-0205-15



13. $y > -2x - 2$

14. $x \leq 3$

15. $y \leq -x - 6$

16. $y > 5x - 5$

Graphing Absolute Value Equations

Review Queue Answers

1. $x = 7, -5$

2. $x = \frac{11}{3}, -7$

3. $x = 40, -16$

Graphing Basic Absolute Value Functions

1. $v(-6, 0)$, Domain: $x \in \mathbb{R}$, Range: $y \in [0, \infty)$

2. $v(4, 0)$, Domain: $x \in \mathbb{R}$, Range: $y \in [0, \infty)$

3. $v(0, 3)$, Domain: $x \in \mathbb{R}$, Range: $y \in (-\infty, 3]$

4. $v(0, -2)$, Domain: $x \in \mathbb{R}$, Range: $y \in [-2, \infty)$

5. $v(-3, 7)$, Domain: $x \in \mathbb{R}$, Range: $y \in (-\infty, 7]$

6. $v(1, -6)$, Domain: $x \in \mathbb{R}$, Range: $y \in [-6, \infty)$

7. $v(0, 0)$, Domain: $x \in \mathbb{R}$, Range: $y \in [0, \infty)$

8. $v(0, 0)$, Domain: $x \in \mathbb{R}$, Range: $y \in [0, \infty)$

9. $v(0, 0)$, Domain: $x \in \mathbb{R}$, Range: $y \in [0, \infty)$

10. upside down

11. (h, k)

12. all real numbers

13. narrower

14. wider

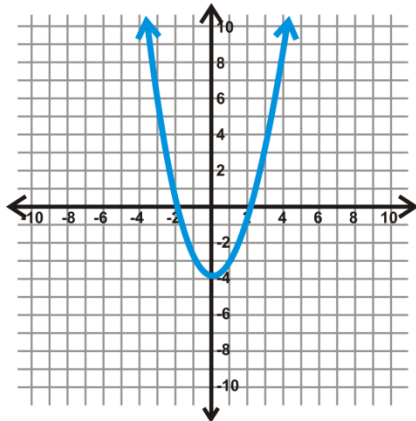
15. $(9, 7)$

Using the General Form and the Graphing Calculator

1. The first and third graphs are exactly the same. The only difference between those and the second function is that it is flipped upside down. Because the negative sign is inside the absolute value on the third function, it become positive, making the graph look exactly like the first. All three graphs are narrower than the parent graph.
2. Both graphs are wider than the parent function. The first graph is shifted over one unit to the left. The second graph is shifted up one unit.
3. Yes, they do all produce the same graph. When the two is inside the absolute value, it doesn't matter if it is positive or negative, the answer will always be positive. In the first function, the two is outside the graph, but because it is positive, it will be no different than the other two functions.
4. In general, you could say that if the vertex is (h, k) and the equation is $y = a|x - h| + k$, the range is: $y \in [k, \infty)$ if a is positive and $y \in (-\infty, k]$ if a is negative.
5. $v(2, 5)$, Domain: $x \in \mathbb{R}$, Range: $y \in [5, \infty)$
6. $v(-3, 0)$, Domain: $x \in \mathbb{R}$, Range: $y \in (-\infty, 0]$
7. $v(0, 4)$, Domain: $x \in \mathbb{R}$, Range: $y \in [4, \infty)$
8. $v(-1, -2)$, Domain: $x \in \mathbb{R}$, Range: $y \in [-2, \infty)$
9. $v(7, 0)$, Domain: $x \in \mathbb{R}$, Range: $y \in (-\infty, 0]$
10. $v(8, 6)$, Domain: $x \in \mathbb{R}$, Range: $y \in (-\infty, 6]$
11. $v\left(-\frac{1}{2}, 0\right)$, Domain: $x \in \mathbb{R}$, Range: $y \in (-\infty, 0]$
12. $v\left(4, \frac{1}{2}\right)$, Domain: $x \in \mathbb{R}$, Range: $y \in \left[\frac{1}{2}, \infty\right)$
13. $v\left(\frac{3}{2}, -\frac{7}{2}\right)$, Domain: $x \in \mathbb{R}$, Range: $y \in \left[-\frac{7}{2}, \infty\right)$

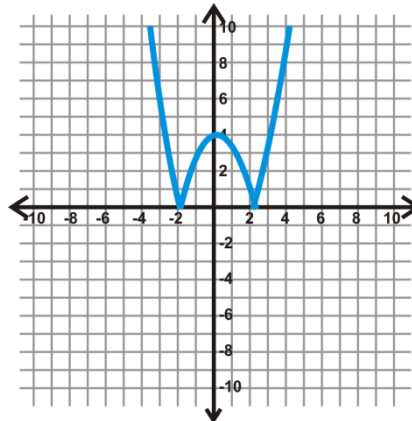
14. Domain: $x \in \mathbb{R}$, Range: $y \in [-4, \infty)$

ans-0206-01



15. $x \in \mathbb{R}$, Range: $y \in [0, \infty)$

ans-0206-02

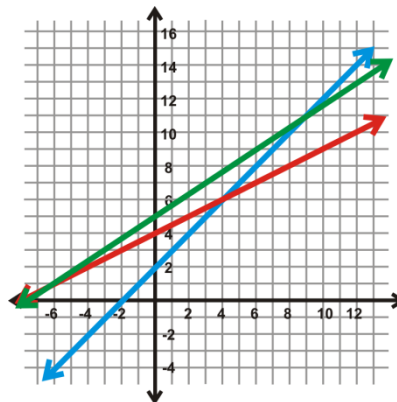


16. When $x \in (-\infty - 2] \cup [2, \infty)$, the ranges and graphs are exactly the same. What happens between -2 and 2 is what changes. This is because in the original function, what is between -2 and 2 is below the x-axis, making the range negative. Because the second function is the absolute value, the range cannot be negative. Therefore, it is like we took everything that was below the x-axis in the first function and folded it above the x-axis in the second function.

Analyzing Scatterplots

Review Queue Answers

1. Mean: 20, Median: 20, Mode: 14
- 2.
3. a) (-6, 1)
b) (9, 11)
c) (4, 6)

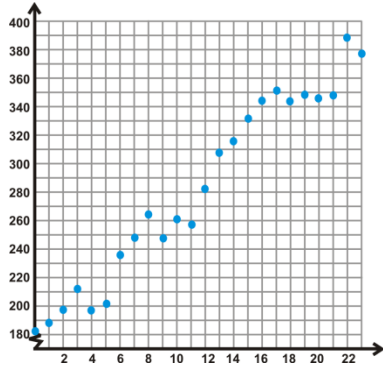


ans-0207-01

Plotting a Scatterplot and Finding the Equation of Best Fit

1. negative
2. none
3. positive
4. $y = x$
5. $y = -2x + 10$

6.

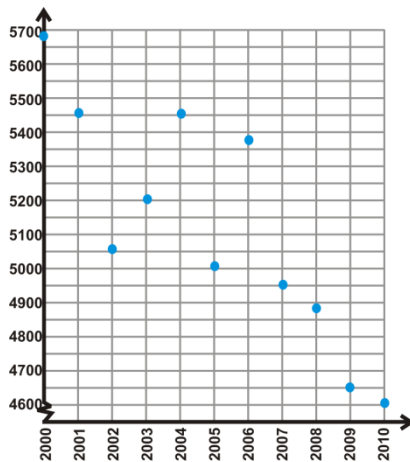


ans-0207-02

7. $y = 9x + 197$

8. \$413

9.



ns-0207-03

10. $y = -100x + 5600$

11. 4500 home runs in 2011

*Answers may vary slightly for 7, 8, 10, and 11.

Finding the Equation of Best Fit using a Graphing Calculator

1. $y = 9.15x + 177.84$

2. $y = -88.36x + 5566.73$

3. $y = 0.003x + 59.17$

4. -90.83°

5. $y = 0.21x - 52.87$

6. 76.39

7. $y = 0.24x - 57.09$

8. 83.97

9. Answers may vary. One possible answer could be advances in medicine (medications and treatments) have affected the life expectancy such that people are living longer.