HOMEWORK

Homework Problems

Circle the homework problems assigned to you by the computer, then complete them below.

Explain
Linear Inequalities

1. In each row, check the boxes corresponding to the coordinates that make the statement true.

	(1, 7)	(4, 2)	(2, 5)	(0, 0)	(–6, 3)	(–4, –3)	(3, –6)
$y < 2x + 1$							
$y = 2x + 1$							
$y > 2x + 1$							

2. Graph the inequality $y \leq x + 2$.

3. Graph the inequality $x + y \geq -5$.

4. Find the coordinates of three points that satisfy the inequality $y \leq 3x - 2$.

5. Graph the inequality $y \geq \frac{2}{5}x - 2$.

6. Graph the inequality $3x - 2y > 12$.

7. In what ways do the graphs of the inequalities $x + y < 4$ and $x + y \leq 4$ differ?

8. Graph the inequality $2x > 7y$.

9. Janna has up to \$5.00 to spend on snacks at a new health food store. If guava chips are \$4.00 per pound and shredded coconut is \$2.50 per pound, graph the inequality that represents how much of each she can buy.

10. Shobana has up to \$12.00 to spend on junk food. If she can buy bulk candy for \$2.25 per pound and cookies for \$3.00 per pound, graph the inequality that represents how much of each she can buy.

11. Graph the inequality $5x - 4y \geq 0$.

12. In what ways do the graphs of the inequalities $2x - y > 3$ and $2x - y < 3$ differ?

APPLY

Practice Problems

Here are some additional practice problems for you to try.

1. In each row, check the boxes corresponding to the coordinates that make the statement true.

	(2, –1)	(4, –2)	(–5, 2)	(3, 8)	(–3, 1)	(4, 3)	(–1, 6)
$x - y < 1$							
$x - y = 1$							
$x - y > 1$							

2. In each row, check the boxes corresponding to the coordinates that make the statement true.

	(1, –3)	(3, –4)	(–6, 2)	(2, 7)	(–2, 1)	(6, 5)	(–2, 5)
$x + y < -1$							
$x + y = -1$							
$x + y > -1$							

3. In each row, check the boxes corresponding to the coordinates that make the statement true.

	(–3, 4)	(–5, 3)	(–1, 4)	(3, 5)	(3, –8)	(5, –1)	(–4, –5)
$2x - y < 1$							
$2x - y = 1$							
$2x - y > 1$							

4. In each row, check the boxes corresponding to the coordinates that make the statement true.

	(–2, 7)	(–4, 2)	(–1, 6)	(2, 5)	(2, –5)	(4, –2)	(–1, –2)
$3x + y < 1$							
$3x + y = 1$							
$3x + y > 1$							

5. Graph the inequality $x - y > 4$.
6. Graph the inequality $x - y < -3$.
7. Graph the inequality $x - y < 5$.
8. Graph the inequality $x + y > 1$.
9. Graph the inequality $x + y < -5$.
10. Graph the inequality $x + y < -2$.
11. Graph the inequality $x + y \leq -1$.
12. Graph the inequality $x + y \geq 5$.
13. Graph the inequality $x + y \geq 1$.
14. Graph the inequality $x - y \leq -4$.
15. Graph the inequality $x - y \geq 6$.
16. Graph the inequality $x - y \geq -3$.
17. Graph the inequality $\frac{2}{3}x + y < -3$.
18. Graph the inequality $\frac{1}{4}x + y > 1$.
19. Graph the inequality $\frac{1}{2}x + y > -2$.
20. Graph the inequality $3x - y \geq 2$.
21. Graph the inequality $-4x - y \leq -3$.
22. Graph the inequality $-2x - y \leq 1$.
23. Graph the inequality $4x - 3y < 12$.
24. Graph the inequality $2x + 5y > -5$.
25. Graph the inequality $3x + 2y > 8$.
26. Graph the inequality $-3x + \frac{1}{3}y \geq -2$.
27. Graph the inequality $2x - \frac{3}{2}y \leq 3$.
28. Graph the inequality $2x - \frac{1}{2}y \leq 1$.

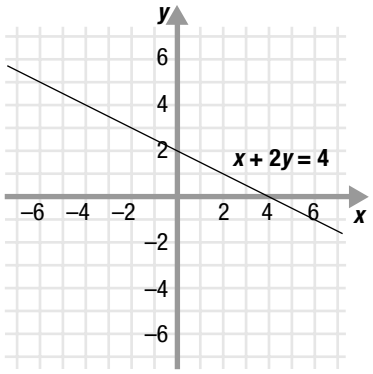
EVALUATE

Practice Test

Take this practice test to be sure that you are prepared for the final quiz in Evaluate.

1. Graph the inequality $y > \frac{2}{3}x - 1$.

2. The graph of the line $x + 2y = 4$ is shown in Figure 4.3.5. Circle the point(s) below that satisfy the inequality $x + 2y \leq 4$.



(0, 0)

(5, 2)

(–3, –1)

(8, –4)

Figure 4.3.5

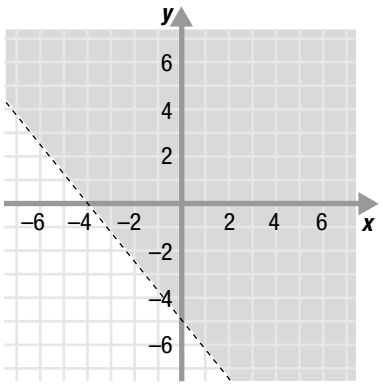
3. Graph the inequality $y \leq 2x - 1$.

4. Circle the point(s) below that satisfy the linear inequality $y \leq 4$.

(23, 56) (0, 0)

(8, –14) (–6, 7)

5. Circle the inequality below that has a solution represented on the graph shown in Figure 4.3.6.



$5x + 4y > -20$

$4x - 5y < 20$

$4x + 5y > -20$

$5x - 4y < 20$

Figure 4.3.6

6. Graph the inequality $y \leq 2x + 3$.

7. The graph of the equation $y = -\frac{1}{2}x - 2$ is shown in Figure 4.3.7. Circle the point(s) below that satisfy the inequality $y > -\frac{1}{2}x - 2$.

(1, 2)

(–3, 3)

(–5, 6)

(2, –5)

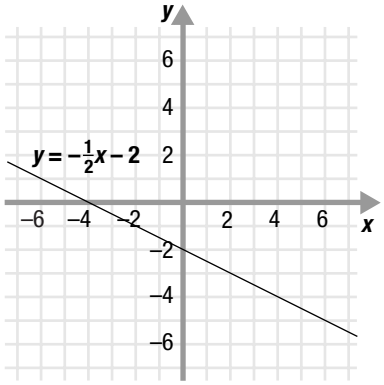
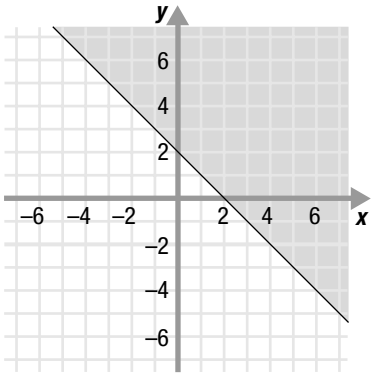


Figure 4.3.7

8. Circle the inequality below that has a solution represented on the graph shown in Figure 4.3.8.



$y > -x + 2$

$y < -x + 2$

$y \leq -x + 2$

$y \geq -x + 2$

Figure 4.3.8

TOPIC 4 CUMULATIVE ACTIVITIES

CUMULATIVE REVIEW PROBLEMS

These problems combine all of the material you have covered so far in this course. You may want to test your understanding of this material before you move on to the next topic. Or you may wish to do these problems to review for a test.

1. Graph the equation $x - y = -2$.
2. Find the x- and y-intercepts of the line $2x + y = 3$.
3. Find the equation of the line through the point (9, 4) with slope $\frac{5}{4}$. Write the equation in standard form.
4. Graph the line through the point (3, 3) with slope 2.
5. Evaluate the expression $-5a^2b - 4a^3 + 7b^4$ when $a = 2$ and $b = -2$.
6. Find: $[3 + 2(5 - 7)^2] + 8$
7. Graph the inequality $y \geq 3x - 4$.

8a. Find the equation of the vertical line through the point (–4, 5).

b. What is the slope of this line?

c. Find the equation of the horizontal line through the point (–4, 5).

d. What is the slope of this line?

9. Write in lowest terms: $\frac{270}{405}$
10. Graph the line $y = 4$.
11. Find: $\left| -\frac{7}{9} + \frac{5}{6} \right|$
12. The sum of three consecutive numbers is –18. What are the numbers?
13. Graph the inequality $\frac{2}{5}x + y < 2$.
14. Find the x- and y-intercepts of the line $\frac{6}{7}x - \frac{4}{7}y = 2$.

15a. Find four points whose coordinates satisfy the inequality $x + 2y < 5$.

b. Find four points whose coordinates satisfy the inequality $x + 2y > 5$.

c. Find four points whose coordinates satisfy the equation $x + 2y = 5$.

16. Graph the equation $3x + 4y = 12$.
17. Find: $8\frac{2}{5} - 4\frac{1}{7}$
18. Solve for x: $2x - 4 = \frac{2}{3}(-3 + x)$
19. Find: $\frac{8}{11} \div \frac{16}{55}$
20. Graph the line through the point (–2, –5) with slope –1.
21. Find the equation of the line through the points (–7, 3) and (0, 4). Write your answer in standard form.
22. Write in lowest terms: $\frac{20}{35}$
23. Solve for y: $-5(y - 2) = \frac{2}{7}(6y - \frac{1}{2})$
24. Graph the inequality $\frac{2}{3}x - \frac{1}{2}y < -1$.
25. Paul is 21 years older than Rita. Ten years ago, Paul was twice as old as Rita was then. How old is each of them now?
26. The surface area, S, of a sphere is $S = 4\pi r^2$, where r is the radius of the sphere. Solve this formula for r.
27. Graph the line $x = -7$.
28. Evaluate the expression $2x^2 + 4xy - 3y + 1$ when $x = -3$ and $y = 5$.
29. Solve $-3 < 2x + 1 \leq 8$ for x, then graph its solution on the number line below.

30. Find the slope of the line through the points (3, 8) and (–2, 1).

31. Graph the inequality $7x - 5y > 0$.

32. Write in lowest terms: $\frac{42}{63}$

33. Solve for y: $y + 1 = -\frac{1}{5}(67 + 9y)$

34. Write the equation of the line through the point $(-8, -6)$ with slope $\frac{9}{4}$. Write your answer in slope-intercept form.

35. Find the slope of the line perpendicular to the line through the points (7, –3) and (4, 9).

36. Graph the equation $\frac{2}{5}x + \frac{1}{5}y = -1$.

37. Find the equation of the line through the point (5, –1) with slope 4. Write your answer in point-slope form.

38. Find the slope and y-intercept of the line $3x + 2y = 8$.

39. Find: $3\frac{7}{9} + 1\frac{2}{3}$

40. Solve $\frac{3}{2} < 2 - x \leq 7$ for x, then graph its solution on the number line below.