

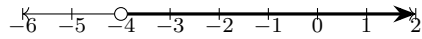
CHAPTER 3 | PRACTICE SET**3.1 | Writing and Graphing Inequalities**

Name _____

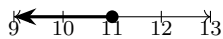
Date _____

Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

1. Write an inequality for the graph and describe its solutions.



2. Write an inequality for the graph and describe its solutions.



3. Write: a number x is at least 15.

4. Write: a number r added to 3.7 is less than 1.2.

5. Write: a number h divided by 2 is more than -5 .

6. Write: a number a minus 8.2 is no greater than 12.

7. Is $p = -9$ a solution of $p + 1.7 \geq -4$?

8. Is $y = 1$ a solution of $-3y < -5$?

CHAPTER 3 | PRACTICE SET**3.1 | Writing and Graphing Inequalities**

Name _____

Date _____

Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

9. Is $g = 0$ a solution of $1.5g \leq 6$?

10. Is $d = \frac{1}{2}$ a solution of $\frac{3}{4} - d > \frac{1}{3}$?

11. Graph $\ell \leq 3.5$.

12. Graph $m > -15$.

13. A restaurant job requires applicants to be at least 16 years old. Define a variable and write the inequality.

14. Is $t = -3$ a solution of $5t < 4 - t$?

15. Is $q = 15$ a solution of $\frac{q}{5} < q - 20$?

16. A scholarship requires a GPA of at least 3.5, at least 12 college-preparatory credits, and at least 75 hours of community service, in addition to a qualifying test score.
 - (a) Write and graph three inequalities for these requirements.

 - (b) A student has a 3.6 GPA, 15 credits, and 65 service hours. Apart from test scores, does the student qualify? Explain.

CHAPTER 3 | PRACTICE SET**3.2 | Solving Inequalities Using Addition or Subtraction**

Name _____

Date _____

Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

1. Solve and graph $-12 \leq y - 17$.

2. Solve and graph $w - 1.8 < 2.5$.

3. Solve and graph $v + \frac{1}{3} > 8$.

4. Solve and graph $\frac{2}{5} < \frac{4}{5} + k$.

5. Solve and graph $q + \frac{3}{4} \geq -\frac{1}{4}$.

6. Solve and graph $-\frac{3}{2} + r < \frac{1}{2}$.

7. Solve and graph $7.4 > c + 3.9$.

CHAPTER 3 | PRACTICE SET**3.2 | Solving Inequalities Using Addition or Subtraction**

Name _____

Date _____

Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

8. Solve and graph $p - 10.2 > 3.5$.
9. Three divers may have at most 18 lobsters on their boat, and currently have 7.
- (a) Write and solve for additional lobsters n .
 - (b) A fourth diver brings 3 lobsters; the boat limit becomes 24. Write and solve the new inequality.
 - (c) What per-person limit is implied? Treat these as the given rules for the problem.
10. A rectangle has width 8 m and length $(x - 4)$ m. The length is greater than the width. Write and solve an inequality.
11. A hexagon has side lengths 8, 8, 5, 5, 5, $(x + 4)$ inches. Its perimeter is at most 50 inches. Write and solve an inequality; retain positive side lengths.
12. The solution of $w - c > -3.4$ is $w > -1.4$. Find c .
13. A triangle has two sides of lengths 6 in. and 17 in. The sum of any two sides must exceed the third side. What values can the third length have? Explain.

CHAPTER 3 | PRACTICE SET**3.3 | Solving Inequalities Using Multiplication or Division**

Name _____

Date _____

Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

1. Solve and graph $3y \leq \frac{3}{4}$.

2. Solve and graph $-3.2 < \frac{p}{10}$.

3. Solve and graph $1.6g \geq 0.48$.

4. Solve and graph $2.5k < -100$.

5. Solve and graph $\frac{s}{3.1} \geq 4.5$.

6. Solve and graph $-\frac{4}{5} < 2x$.

7. Write and solve: a number divided by 5 is at least 4.

8. Write and solve: the product of 2 and a number is at most -6 .

9. The solution of $cx \geq -4$ is $x \geq -8$. Find c .

CHAPTER 3 | PRACTICE SET**3.3 | Solving Inequalities Using Multiplication or Division**

Name _____

Date _____

Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

10. Solve and graph $-6t < 24$.

11. Solve and graph $-\frac{2}{5} \leq \frac{u}{-1}$.

12. Solve and graph $\frac{q}{-0.4} \leq 1.9$.

13. Solve and graph $-\frac{d}{2} > \frac{3}{8}$.

14. Solve and graph $-1.2 \leq -0.8r$.

15. Solve and graph $\frac{j}{-5.2} \leq -1.5$.

16. A room is 10 feet high.

(a) Each shelf needs 8 inches. Write and solve for the maximum number of shelves.

(b) Including thickness, each shelf actually needs 10 inches. Revise the maximum.

17. Describe and graph all numbers satisfying both $3x < 12$ and $-3x < -3$.

18. Describe and graph all numbers satisfying both $\frac{y}{5} \leq -2$ and $-\frac{y}{4} \geq 1$.

CHAPTER 3 | PRACTICE SET

3.4 | Solving Multi-Step Inequalities

Name _____

Date _____

Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

1. Solve and graph $2 - \frac{q}{3} > 6$.

2. Solve and graph $7 \leq 0.5v + 10$.

3. Solve and graph $-\frac{1}{4} \leq 4k + \frac{7}{4}$.

4. Solve and graph $3.6 - 0.24n < 1.2$.

5. An RV park receives \$300 per occupied residential site per month and \$2000 monthly from overnight sites. How many residential sites must be occupied to receive at least \$14,000 per month? Write and solve.

6. Solve $-5(m - 2) > 30$.

7. Solve $-\frac{3}{2}(f + 6) \leq -6$.

CHAPTER 3 | PRACTICE SET

3.4 | Solving Multi-Step Inequalities

Name _____

Date _____

Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

8. Solve $10.5 < 1.5(p - 3)$.
9. Solve $2(x - 1) > 2x + 4$.
10. A rectangle has dimensions 4.5 m by $(x + 3)$ m. Its area is at most 45 square meters. Write and solve; require positive side lengths.
11. Solve and graph $12x - 5x - 4 \geq 60 - 8$.
12. Solve and graph $4v + 6v + 3.2 < 6.8 - 9.2$.
13. An animal shelter pays \$750 per week plus \$6 per animal.
- (a) Summer costs are at least \$1170. Find possible animal counts.
- (b) Winter costs are at most \$900. Find the maximum count.
- (c) If the per-animal cost increases by \$2 but the winter count remains bounded as in (b), what is the maximum weekly winter cost?

CHAPTER 3 | PRACTICE SET**3.5 | Solving Compound Inequalities**

Name _____

Date _____

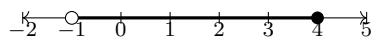
Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

1. Write and graph: m is at least 1 and less than 7.

2. Write and graph: r is no more than -2 or greater than -6 .

3. Write and graph: p is greater than 10 and fewer than 15.

4. Write an inequality for this graph.



5. The least ticket price is \$15 and the greatest is \$45. Write a compound inequality describing the allowed range of prices, and graph it.

CHAPTER 3 | PRACTICE SET**3.5 | Solving Compound Inequalities**

Name _____

Date _____

Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

6. Solve and graph $2 \leq x + 3 < 5$.

7. Solve and graph $-7 < 3x - 4 < 8$.

8. Solve and graph $9 > 5x - 6 \geq 4$.

9. Solve and graph $3x - 5 < -2$ or $2x + 7 > 23$.

10. Solve and graph $-4x + 3 \leq 11$ or $-10x - 7 \geq 23$.

CHAPTER 3 | PRACTICE SET**3.6 | Solving Absolute Value Inequalities**

Name _____

Date _____

Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

1. Solve and graph $|x + 5| \leq 8$.

2. Solve and graph $|x - 1| > 4$.

3. Solve and graph $6 < |3x - 3|$.

4. Solve $|6x - 9| > -2$.

5. Solve and graph $2|3x - 8| - 5 < 9$.

6. Solve and graph $-3|x - 2| + 5 \leq -4$.

CHAPTER 3 | PRACTICE SET**3.6 | Solving Absolute Value Inequalities**

Name _____

Date _____

Show your work. Draw requested graphs in the workspace or on graph paper. Explain when asked.

7. What is the solution of $|3x + 5| < 0$? Explain.
8. A poll reports 52% of households have two or more cars, with a margin of error of ± 4 percentage points. Write and solve an absolute-value inequality for the estimated percentage p .
9. Solve $|2x + 6| \leq 0$.
10. Solve and graph $3|x + 2| + 1 \geq 10$.
11. Lengths 8.8, 9.0, 9.2, 9.4, and 9.6 cm have mean 9.2 cm. Acceptable lengths have absolute deviation at most 0.25 cm from the mean. Write an inequality and identify the acceptable lengths.
12. Solve $|x - 4| > -1$ and $|x - 4| > 0$. Explain the difference.