

# Answer Key

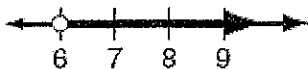
ALGEBRA 293

Review

Solving Inequalities Sec. 3-1 to 3-5

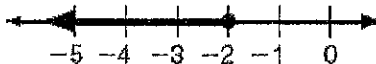
Write the inequality shown by each graph.

1.



$$x > 6$$

2.



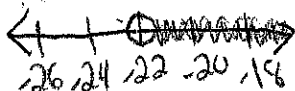
$$x \leq -2$$

Solve each inequality. Graph the solution.

3.  $x + 8 > -14$

$$\begin{array}{r} x + 8 > -14 \\ -8 & -8 \end{array}$$

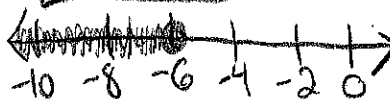
$$x > -22$$



4.  $-9y \geq 54$

$$\begin{array}{r} -9y \geq 54 \\ \frac{-9}{-9} \frac{-9}{-9} \end{array}$$

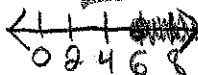
$$y \leq -6$$



5.  $-5x + 7 \leq -23$

$$\begin{array}{r} -5x + 7 \leq -23 \\ -7 & -7 \\ \hline -5x \leq -30 \\ \frac{-5}{-5} & \frac{-30}{-5} \end{array}$$

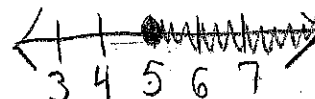
$$x \geq 6$$



6.  $3x + 10 \leq 5x$

$$\begin{array}{r} 3x + 10 \leq 5x \\ -3x & -3x \\ \hline 10 \leq 2x \\ \frac{10}{2} & \frac{2x}{2} \end{array}$$

$$5 \leq x$$

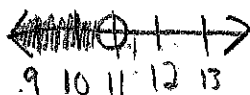


7.  $2(2y + 5) > 3(2y - 4)$

$$\begin{array}{r} 4y + 10 > 6y - 12 \\ 4y & -4y \\ \hline 10 > 2y - 12 \\ +12 & +12 \end{array}$$

$$\begin{array}{r} 22 > 2y \\ \frac{22}{2} & \frac{2y}{2} \end{array}$$

$$11 > y$$



8.  $3x + 2(x - 5) \leq 4x + 3$

$$3x + 2x - 10 \leq 4x + 3$$

$$\begin{array}{r} 5x - 10 \leq 4x + 3 \\ -4x & -4x \end{array}$$

$$x - 10 \leq 3$$

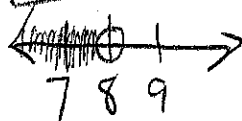
$$\begin{array}{r} x - 10 \leq 3 \\ +10 & +10 \end{array}$$

$$x \leq 13$$



9.  $\frac{-3}{2}y > -\frac{4}{12}$  ( $\frac{2}{-3}$ )

$$y < 8$$



10.  $5(y - 2) \geq 5y + 8$

$$\begin{array}{r} 5y - 10 \geq 5y + 8 \\ -5y & -5y \end{array}$$

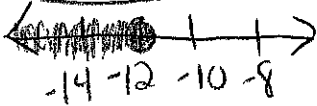
$$-10 \geq 8$$

$$\text{No solution}$$

Solve each inequality. Graph the solution.

$$11. \frac{8k}{8} \leq \frac{-96}{8}$$

$$k \leq -12$$



$$(4) 13. \frac{n}{4} > -12 \quad (4)$$

$$n > -48$$



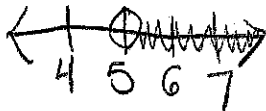
$$15. 3y - 5y + 8 < 2y - 12$$

$$-2y + 8 < 2y - 12$$

$$\begin{array}{r} +2y \quad +2y \\ \hline 8 < 4y - 12 \\ +12 \quad +12 \\ \hline 20 < 4y \end{array}$$

$$\frac{20}{4} < \frac{4y}{4}$$

$$5 < y$$



$$17. 7b \leq 5b - 16$$

$$\begin{array}{r} -5b \quad -5b \\ \hline 2b \leq -16 \\ \hline \frac{2b}{2} \leq \frac{-16}{2} \end{array}$$

$$b \leq -8$$



$$12. 4(2y - 5) < 8(y + 3)$$

$$\begin{array}{r} 8y - 20 < 8y + 24 \\ -8y \quad -8y \\ \hline -20 < 24 \end{array}$$

All Real Numbers

$$14. -5x - 10 + 3x \geq 3(x + 4) + 18$$

$$-2x - 10 \geq 3x + 12 + 18$$

$$-2x - 10 \geq 3x + 30$$

$$\begin{array}{r} +2x \quad +2x \\ \hline -10 \geq 5x + 30 \end{array}$$

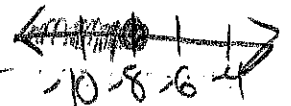
$$-10 \geq 5x + 30$$

$$\begin{array}{r} -30 \quad -30 \\ \hline -40 \geq 5x \end{array}$$

$$-40 \geq 5x$$

$$\frac{-40}{5} \geq \frac{5x}{5}$$

$$-8 \geq x$$

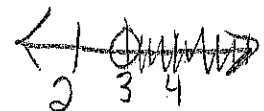


$$16. 5y + 15 - 7y < 3y$$

$$\begin{array}{r} -2y + 15 < 3y \\ +2y \quad +2y \\ \hline 15 < 5y \end{array}$$

$$\frac{15}{5} < \frac{5y}{5}$$

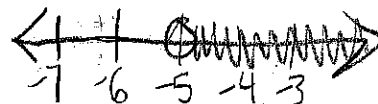
$$3 < y$$



$$18. f - 15 > -20$$

$$\begin{array}{r} +15 \quad +15 \\ \hline f > -5 \end{array}$$

$$f > -5$$



Write and solve an inequality to solve the problem.

19. The Upper Dublin baseball team has \$480 to buy batting helmets. If batting helmets cost \$75 each, what is the maximum number of batting helmets that they can purchase?

$$\frac{\$480}{75} \geq \frac{\$75h}{75}$$

$$6.4 \geq h$$

6 helmets

20. A local fitness center offers a membership for \$30 a month, with a \$50 initiation fee. If you have \$500 available to pay for a membership, how many months can you afford to purchase?

$$\begin{array}{r} 30m + 50 \leq 500 \\ -50 \quad -50 \\ \hline 30m \leq 450 \end{array}$$

$$m \leq 15$$

15 months

$$\frac{30m}{30} \leq \frac{450}{30}$$