

# STUDY GUIDE for Unit 3 Test C: Inequalities

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1.) Graph.  $y \geq 7$



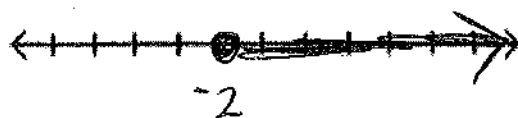
2.) Solve.  $40 \leq -3x + 10$

$$\begin{array}{r} 40 \leq -3x + 10 \\ -10 \quad -10 \\ \hline 30 \leq -3x \\ \frac{30}{-3} \leq \frac{-3x}{-3} \\ -10 \geq x \end{array}$$

Flip!

3.) Solve. Graph your answer on the given number line.

$$\begin{array}{r} 7x \geq -14 \\ \frac{7x}{7} \geq \frac{-14}{7} \\ x \geq -2 \end{array}$$



4.) I need at least \$300 to buy a new four-wheeler. I have already saved up \$75. How much more money do I need? Write and solve an inequality.

$$75 + x \geq 300$$

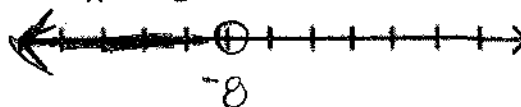
$$x \geq 225$$

at least \$225.

5.) Solve. Graph your answer on the given number line.

$$\begin{array}{r} -2x > 16 \\ \frac{-2x}{-2} > \frac{16}{-2} \\ x < -8 \end{array}$$

Flip!



6.) Write the inequality.

There are at least 35 boys on the football team.

$$x \geq 35$$

7.) Solve.

$$\begin{array}{r} \frac{x}{-3} + 5 < -10 \\ \frac{x}{-3} < -15 \\ \frac{x}{-3} < -15 \end{array}$$

$$-3 \cdot \frac{x}{-3} < -15 \cdot -3$$

$$\text{Flip! } x > 45$$

8.) Kristin has \$100. She wants to buy a super hero cape for \$30 and some turkey legs for \$7 each. At most, how many turkey legs can she buy? Write and solve an inequality.

$$\begin{array}{r} 30 + 7x \leq 100 \\ -30 \quad -30 \\ \hline 7x \leq 70 \end{array}$$

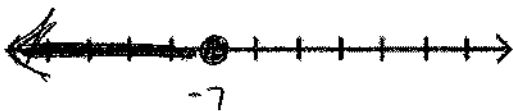
$$\frac{7x}{7} \leq \frac{70}{7}$$

$$x \leq 10$$

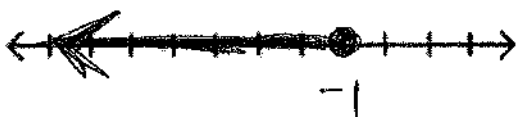
at most 10 turkey legs.

9.) Solve. Graph your answer on the given number line.

$$\begin{array}{r} x - 2 \leq -9 \\ +2 \quad +2 \\ \hline x \leq -17 \end{array}$$



10.) Graph.  $t \leq -1$



11.) Karen divided her books onto 3 shelves. There were at least 18 books per shelf. How many books did she have? Write an inequality to represent the situation, then solve.

$$\frac{48}{3} = 16$$

$$3 \cdot \frac{x}{3} \geq 18 \cdot 3$$

$$x \geq 54$$

at least 54 books

12.) Solve.  $20x + 40 \leq -80$

$$\begin{array}{r} 20x \leq -120 \\ -40 \quad -40 \\ \hline 20x \leq -120 \\ \hline x \leq -6 \end{array}$$

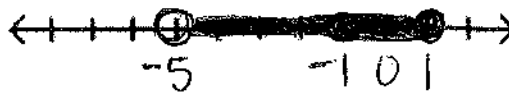
$$x \leq -6$$

13.) Solve. Graph your answer on the given number line.

$$\begin{array}{r} -2 \cdot \frac{x}{-2} > 4 \cdot -2 \\ \hline x < -8 \end{array} \quad \text{Flip!}$$



14.) Graph.  $-5 < m \leq 1$



15.) Solve.  $2(x + 3) > -60$

$$\begin{array}{r} 2x + 6 > -60 \\ -6 \quad -6 \\ \hline 2x > -66 \end{array}$$

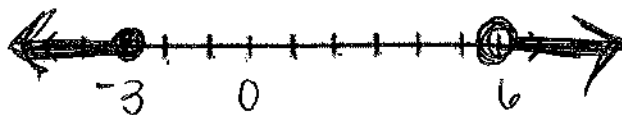
$$\frac{2x}{2} > \frac{-66}{2}$$

$$x > -33$$

16.) Christina bought 4 caramel apples at a carnival. The bill was less than \$16. Write and solve an inequality to represent the cost of each candy apple.

$$\begin{array}{r} 4x < 16 \\ \hline x < 4 \end{array} \quad \text{less than } \$4$$

17.) Graph.  $w \leq -3$  or  $w > 6$



18.) Solve.  $10x + 14 \geq -6$

$$\begin{array}{r} 10x + 14 \geq -6 \\ -14 \quad -14 \\ \hline 10x \geq -20 \\ 10 \quad 10 \\ \hline x \geq -2 \end{array}$$

19.) Solve. Graph your answer on the given number line.

$$\begin{array}{r} x + 6 < -3 \\ -6 \quad -6 \\ \hline x < -9 \end{array}$$

