

# Answer Key / Study Guide

## Module 7 Test Review

1. Solve  $-8\frac{3}{4}x + 3 = -2\frac{1}{2}$  Express the solution as a fraction or mixed number in simplest form.

$$\begin{array}{r|l} -8\frac{3}{4}x + 3 & = -2\frac{1}{2} \\ -3 & -3 \\ \hline -8\frac{3}{4}x & = -5\frac{1}{2} \\ \frac{-8\frac{3}{4}}{-8\frac{3}{4}} & \frac{-5\frac{1}{2}}{-8\frac{3}{4}} \end{array}$$

$$x = \frac{22}{35}$$

2. Solve  $0.25(y - 6) = 1.5$

$$\begin{array}{r|l} 0.25y - 1.5 & = 1.5 \\ +1.5 & +1.5 \\ \hline 0.25y & = 3 \\ \frac{0.25y}{0.25} & \frac{3}{0.25} \end{array}$$

$$y = 12$$

3. Which equation has the solution  $p = 15$ ?

a.  $-5p - 4 = -4p + 3$

b.  $2p - 1 = 3p - 2$

c.  $7p + 8 = -6p - 5$

d.  $8p + 7 = 9p - 8$

Check each equation:

a.  $-5(15) - 4 = -4(15) + 3$  ✗  
 $-64 = -57$

c.  $7(15) + 8 = -6(15) - 5$  ✗  
 $113 = -95$

b.  $2(15) - 1 = 3(15) - 2$  ✗  
 $29 = 43$

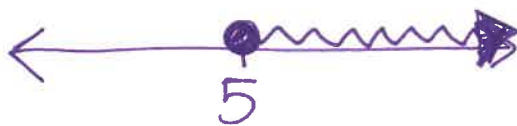
d.  $8(15) + 7 = 9(15) - 8$  ✓  
 $127 = 127$

4. Consider the inequality  $g + 4 \geq 9$

Solve the Inequality. Then, Graph your answer on a number line.

$$\begin{array}{r|l} g + 4 \geq 9 \\ -4 & -4 \\ \hline g \geq 5 \end{array}$$

$$g \geq 5$$



$\leq \geq$  = closed

$< >$  = open

5. Ariel takes  $\$30$  with her to buy a ticket to a concert and a snack. She plans to buy a ticket in the general admission section. → maximum

Section	Ticket Cost
General Admission	\$11.50
Balcony	\$15.00
Backstage	\$18.75

$$\begin{array}{r} \text{ticket} + \text{snack} \leq 30 \\ \uparrow \qquad \qquad \uparrow \\ 11.50 \qquad \qquad x \end{array}$$

Define a variable and write an inequality to represent the amount of money Ariel can spend on a snack. Then solve the inequality and interpret the solution. Explain your reasoning.

$$\begin{array}{r} 11.50 + x \leq 30 \\ -11.50 \qquad \qquad -11.50 \\ \hline x \leq 18.50 \end{array}$$

Ariel will have up to \$18.50 to spend on a snack.

6. Consider the inequality  $-5x \geq 30$ . Solve the inequality. Explain why or why not the direction of the inequality symbol is reversed. Then, graph on a number line.

$$\begin{array}{r} -5x \geq 30 \\ \hline -5 \qquad \qquad -5 \\ \hline x \leq -6 \end{array}$$

\* When you multiply or divide by a negative, you have to flip the sign!



7. Solve  $\frac{x}{-4} \leq -10$

$$\begin{array}{r} \frac{x}{-4} \leq -10 \\ \cdot -4 \qquad \qquad \cdot -4 \\ \hline x \geq 40 \end{array}$$

\* FLIP the SIGN!

8. Iris has already earned \$48 cleaning bathrooms. He earns \$16 per bathroom. He needs at least \$80 for some new equipment. Write and solve an inequality to determine how many more bathrooms Iris will need to clean to have at least \$80.

$$\begin{array}{r} 48 + 16x \geq 80 \\ -48 \quad \quad \quad -48 \\ \hline 16x \geq 32 \\ \hline \frac{16x}{16} \geq \frac{32}{16} \end{array}$$

$$x \geq 2$$

9. Mrs. Robinson is buying hairbows for the cheerleaders. She needs 30 total, and she already has 5. She will buy the hairbows in packages of 4. She cannot buy part of a package. *Can be more, but not less.*

A. Create an inequality using only the given numbers to represent this situation, where  $p$  represents the number of packages of hairbows.

$$5 + 4p \geq 30$$

B. What is the minimum number of whole packages of hairbows that Mrs. Robinson needs to buy?

$$\begin{array}{r} 5 + 4p \geq 30 \\ -5 \quad \quad \quad -5 \\ \hline 4p \geq 25 \\ \hline \frac{4p}{4} \geq \frac{25}{4} \end{array}$$

$$p \geq 6.25$$

at least 7 packages

10. Mrs. Gonzalez goes to the school supply store with \$20. She purchased 3 packs of construction paper for \$2 each and a stapler for \$5. She plans to spend the remainder of her money on flair pens that cost \$0.75 each. What is the greatest number of pens that Mrs. Gonzalez can buy?

$$\begin{array}{r} \underbrace{3 \cdot 2}_{\text{paper}} + \underbrace{5}_{\text{stapler}} + \underbrace{0.75x}_{\text{\# pens}} \leq 20 \end{array}$$

$$\begin{array}{r} 11 + 0.75x \leq 20 \\ -11 \quad \quad \quad -11 \\ \hline 0.75x \leq 9 \\ \hline \frac{0.75x}{0.75} \leq \frac{9}{0.75} \end{array}$$

$$x \leq 12$$

