

Name: Answer Key

Equations & Inequalities PRACTICE TEST

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. Solve: $5 = -2x + 11$
 a. 8 b. -8 c. 3 d. -3
 $5 + 2x = 11$
 $2x = 6$
 $x = 3$

2. Solve: $8 = 5 + \frac{x}{3}$
 a. -7 b. 19 c. 0 d. 9
 $8 - 5 = \frac{x}{3}$
 $3 = \frac{x}{3}$
 $9 = x$

3. Solve: $\frac{x}{7} - 3 = 5$
 a. 38 b. 56 c. 26 d. 1
 $\frac{x}{7} - 3 + 3 = 5 + 3$
 $\frac{x}{7} = 8$
 $x = 56$

4. Solve: $4(x+5) = 16$
 a. 7 b. $\frac{11}{4}$ c. -1 d. -8
 $4x + 20 = 16$
 $4x = -4$
 $x = -1$

5. Solve: $8y - 2y = 12$
 a. $y = -2$ b. $y = -18$ c. $y = \frac{-10}{8}$ d. $y = 2$
 $6y = 12$
 $y = 2$

6. Solve: $4v - 6 = -14 + 6$
 a. $v = \frac{1}{2}$ b. $v = 2$ c. $v = -2$ d. $v = -2$
 $4v - 6 = -8$
 $4v = -2$
 $v = -\frac{1}{2}$

7. A number times 5, minus 6, is 8. Write an equation to determine the number.
 a. $6 - 5x = 8$ b. $5x - 6 = 8$ c. $5 - 6x = 8$ d. $6x - 5 = 8$

8. Use a symbol to write an inequality that corresponds to this statement: x is less than or equal to 4.
 a. $x \geq 4$ b. $x > 4$ c. $x < 4$ d. $x \leq 4$

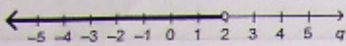
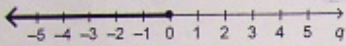
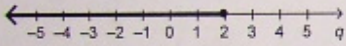
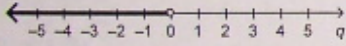
B 7. A number times 5, minus 6, is 8. Write an equation to determine the number.

- a. $6 - 5x = 8$ b. $5x - 6 = 8$ c. $5 - 6x = 8$ d. $6x - 5 = 8$

D 8. Use a symbol to write an inequality that corresponds to this statement: x is less than or equal to 4

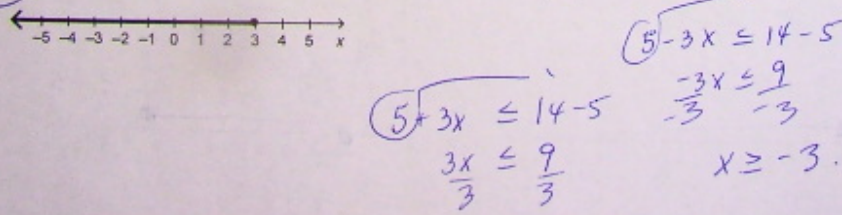
- a. $x \geq 4$ b. $x > 4$ c. $x < 4$ d. $x \leq 4$

C 9. Which of these graphs represent the solution of the inequality $q - 2 \leq 0$?

- a)  $q \leq +2$
- b) 
- c) 
- d) 

D 10. Which inequality has its solution graphed on the number line below?

- a) ~~$2 + 3x \geq 11 + 2$~~ $\frac{3x}{3} \geq \frac{9}{3}$ $\frac{-3x}{-3} \geq \frac{9}{-3}$
- b) ~~$3 - 3x \geq 12$~~ $x \geq 3$ $x \leq -3$
- c) ~~$5 - 3x \leq 14$~~
- d) $5 + 3x \leq 14$



Short Answer. Remember to SHOW YOUR WORK for all questions in this section!

1. Solve the following equations:

<p>a) $7n - 3 + 2n + 7 = 64$</p> $9n + 4 = 64 - 4$ $\frac{9n}{9} = \frac{60}{9}$ $n = \frac{60}{9} \div 3$ $n = \frac{20}{3}$	<p>b) $2(p + 5) + 3(p - 2) = 2(p + 6)$</p> $2p + 10 + 3p + 6 = 2p + 12$ $5p + 16 = 2p + 12$ $5p - 2p = 12 - 4$ $3p = 8$ $p = \frac{8}{3}$	<p>c) $20 = \frac{-3x}{4} + 5$</p> $-3x + 5 = 20 \cdot 4$ $-3x + 20 = 80 - 20$ $-3x = 60$ $x = -20$
<p>d) $\frac{x^{20}}{5} + \frac{7^{30}}{6} = \frac{6^{30}}{5}$</p> $\frac{70x}{5} + \frac{210}{6} = \frac{180}{5}$ $6x + 35 = 36 - 35$ $\frac{6x}{6} = \frac{1}{6} \quad x = \frac{1}{6}$	<p>e) $\frac{1}{3}(2x - 1) = \frac{3}{2}(x - 4) - 1^{x6}$</p> $\frac{6}{3}(2x - 1) = \frac{18}{2}(x - 4) - 6$ $2(2x - 1) = 9(x - 4) - 6$ $4x - 2 = 9x - 36 - 6$ $4x - 2 = 9x - 42$ $4x - 9x = -42 + 2$ $-5x = -40$ $x = 8$	

2. A student solved this equation: $3x + 5 = 18$

$3x + 5 = 18$

a) Circle the errors the student made.

2. A student solved this equation: $3x + 5 = 18$

$$\begin{aligned} 3x + 5 &= 18 \\ \frac{3x}{3} + 5 &= \frac{18}{3} \\ x + 5 &= 6 \\ x + 5 - 5 &= 6 - 5 \\ x &= 1 \end{aligned}$$

a) Circle the errors the student made.

b) Solve the equation in the space provided:

$$\begin{aligned} \frac{-5x}{-5} &= \frac{-40}{-5} & x &= 8 \\ 3x + 5 &= 18 - 5 \\ \frac{3x}{3} &= \frac{13}{3} \\ x &= \frac{13}{3} \end{aligned}$$

3. State whether you would reverse the inequality sign to solve each inequality.

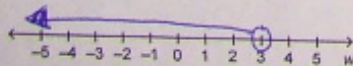
- a) $6 < -x$ ~~✓~~ $-x \geq 6$
- b) $2x \geq -4$ $x \leq -6$
- c) $\frac{x}{-4} < -5$
- d) $\frac{-x}{3} > 9$

4. Define a variable and write an inequality to describe the situation.

- a) You must be under 12 years old to play for the Mini Tommies. $x \leq 12$
- b) Student Council must sell at least 45 t-shirts to make a profit. $x \geq 45$

5. Graph the solution on a number line.

$$\begin{aligned} -9w &> -27 \\ \frac{-9w}{-9} &\frac{-27}{-9} \\ w &< 3 \end{aligned}$$



$$\begin{aligned} 35 &\geq -6y + 5 \\ -6y + 5 &\leq 35 - 5 \\ -6y &\leq \frac{30}{-6} \\ y &\geq -5 \end{aligned}$$

