

Equations & Inequalities PRACTICE TEST

Name: Answer Key

Multiple Choice

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

C 1. Solve: $5 = -2x + 11$
 a. 8 b. -8

c. 3 d. -3
 $5 + \frac{x}{3} = 8 \cdot 3$
 $15 + x = 24 - 15$
 $x = 9$

$-2x + 11 = 5 - 11$
 $-2x = -6$
 $x = 3$

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

c. 0 d. 9

B 3. Solve: $\frac{x}{7} - 3 = 5$
 a. 38 b. 56

c. 26 d. 1

$\frac{x}{7} - 3 = 5$
 $x - 21 = 35 + 21$
 $x = 56$

C 4. Solve: $4(x + 5) = 16$
 a. 7 b. $\frac{11}{4}$

c. -1 d. -8

A 5. Solve: $8y - 2y = 12$
 a. $y = -2$ b. $y = -18$

$\frac{6y}{6} = \frac{-12}{6}$
 $y = -2$
 c. $y = \frac{-10}{8}$ d. $y = 2$

$4x + 20 = 16 - 20$
 $\frac{4x}{4} = \frac{-4}{4}$
 $x = -1$

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

$\frac{4x}{4} = \frac{-8}{4}$
 $x = -2$
c. $v = -2$ d. $v = -2$

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

$5x - 6 = 8 + 6$
 $5x =$

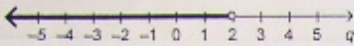
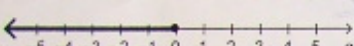
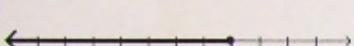

B 7. A number times 5, minus 6, is 8. Write an equation to determine the number.

- 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. $x \leq 4$

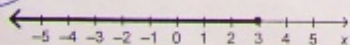
C 9. Which of these graphs represent the solution of the inequality $q - 2 \leq 0$?

- a) 
- b) 
- c) 
- d) 

$q \leq +2$

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) $5 + 3x \leq 14$



$5 - 3x \leq 14 - 5$
 $\frac{-3x}{-3} \leq \frac{9}{-3}$
 $x \geq -3$

$5 + 3x \leq 14 - 5$
 $\frac{3x}{3} \leq \frac{9}{3}$
 $x \leq 3$

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

1. Solve the following equations:

a) $7n - 3 + 2n + 7 = 64$

$$9n + 4 = 64 - 4$$

$$\frac{9n}{9} = \frac{60}{9}$$

$$n = \frac{60}{9} \div 3$$

$$n = \frac{20}{3}$$

b) $2(p+5) + 3(p-2) = 2(p+6)$

$$2p + 10 + 3p + 6 = 2p + 12$$

$$5p + 16 = 2p + 12$$

$$5p - 2p = 12 - 16$$

$$3p = -4$$

$$p = \frac{-4}{3}$$

c) $20 = \frac{-3x}{4} + 5$

$$-3x + 20 = 20 - 20$$

$$-3x = -20$$

$$x = \frac{-20}{-3}$$

$$x = \frac{20}{3}$$

d) $\frac{x+30}{5} + \frac{7}{6} = \frac{6x+30}{5}$

$$\frac{30x + 210}{5} = \frac{180}{5}$$

$$6x + 35 = 36 - 35$$

$$\frac{6x}{6} = \frac{1}{6} \quad x = \frac{1}{6}$$

e) $\frac{1}{3}(2x-1) = \frac{3}{2}(x-4) - 1$

$$\frac{2(2x-1)}{3} = \frac{18(x-4) - 6}{2}$$

$$2(2x-1) = 9(x-4) - 6$$

$$4x - 2 = 9x - 36 - 6$$

$$4x - 2 = 9x - 42$$

$$4x - 9x = -42 + 2$$

$$\frac{-5x}{-5} = \frac{-40}{-5} \quad x = 8$$

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) $6 < -x$ $\frac{-x}{-1} \Rightarrow \frac{6}{-1}$
 b) $2x \geq -4$
 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. $x \geq 45$

Graph the solution on a number line.

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.

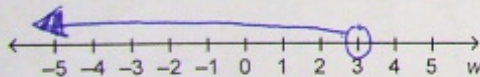
$$x \leq 12$$

b) Student Council must sell at least 45 t-shirts to make a profit.

$$x \geq 45$$

Graph the solution on a number line.

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



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

