

Key

Pre-Algebra Chapter 2 Practice Test

1.) (1 pt each) Properties of Numbers (2-1) Write the name of the property shown.

a) $3(a + b) = 3a + 3b$

Distributive property

b) $2 \times 1 = 2$

Multiplicative identity

c) $3 + 13 + 7 = 3 + 7 + 13$

Commutative property

d) $(17 \times 5) \times 20 = 17 \times (5 \times 20)$

Associative property

2.) (4 pts each) Distributive Property (2-2) Simplify each expression.

a) $7(5a + 3)$

$35a + 21$

b) $(4 + x)(6)$

$24 + 6x$

c) $-(3y + 2)$

$-3y - 2$

d) $-8(11a - 9)$

$-88a + 72$

3.) (4 pts each) Simplifying Variable Expressions (2-3) Simplify each expression.

a) $15a + 8b - 9a + 3b$

$$\begin{array}{r} \underbrace{15a + 8b - 9a + 3b}_{\substack{15a - 9a \\ 8b + 3b}} \end{array}$$

$$\boxed{6a + 11b}$$

b) $8c + 7(2c - 3)$

$$\begin{array}{r} 8c + 14c - 21 \\ \hline 22c - 21 \end{array}$$

c) $3(4 + x) - 8(2x + 4)$

$$\begin{array}{r} \underbrace{12 + 3x - 16x - 32}_{3x - 16x} \quad 12 - 32 \\ \hline -13x - 20 \end{array}$$

$$\boxed{-13x - 20}$$

d) $9y - 2(3y - 5) + 7$

$$\begin{array}{r} 9y - 6y + 10 + 7 \\ \hline 9y - 6y \quad 10 + 7 \\ \hline 3y + 17 \end{array}$$

$$\boxed{3y + 17}$$

4.) (4 pts each) Solving Equations by Adding or Subtracting (2-5) Solve each equation.

a) $b + 8 = 21$

$$\begin{array}{r} -8 \\ -8 \end{array}$$

$$\boxed{b = 13}$$

b) $-14 + x = 18$

$$\begin{array}{r} +14 \\ +14 \end{array}$$

$$\boxed{x = 32}$$

$$\text{c) } a - 11 = 54$$

$$+11 \quad +11$$

$$\boxed{a = 65}$$

$$\text{d) } 38 = y - 13$$

$$+13 \quad +13$$

$$\boxed{51 = y}$$

5.) (4 pts each) Solving Equations by Multiplying or Dividing (2-6) Solve each equation.

$$\text{a) } \frac{6a}{6} = \frac{72}{6}$$

$$\boxed{a = 12}$$

$$\text{b) } \left(\frac{y}{8}\right) = (5)8$$

$$\boxed{y = 40}$$

$$\text{c) } \frac{-15t}{-15} = \frac{45}{-15}$$

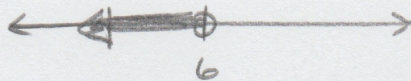
$$\boxed{t = -3}$$

$$\text{d) } \left(\frac{w}{-9}\right) = (12)(-9)$$

$$\boxed{w = -108}$$

6.) (2 pts each) Inequalities and Their Graphs (2-8) Graph the solutions to each inequality on a number line.

a) $6 > y$ $y < 6$



b) $q \leq 12$

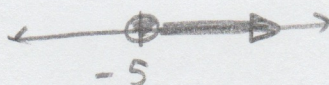


c) $b > -3$



d) $-5 \leq h$

$h \geq -5$

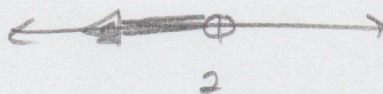


7.) (4 pts each) Solving One-Step Inequalities by Adding or Subtracting (2-9) Solve each inequality. Graph the solutions.

a) $7 + a < 9$

$-7 \quad -7$

$a < 2$



b) $29 \leq x + 12$

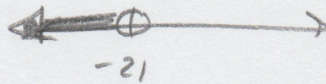
$-12 \quad -12$

$17 \leq x$

$x \geq 17$

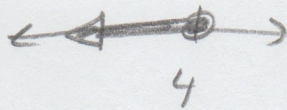


$$\begin{aligned}
 \text{c) } -30 &> b - 9 \\
 +9 & \quad +9 \\
 -21 &> b \\
 b &< -21
 \end{aligned}$$

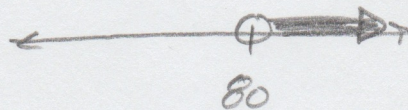


8.) (4 pts each) Solving One-Step Inequalities by Multiplying or Dividing (2-10) Solve each inequality. Graph the solutions.

$$\begin{aligned}
 \text{a) } \frac{9x}{9} &\leq \frac{36}{9} \\
 x &\leq 4
 \end{aligned}$$



$$\begin{aligned}
 \text{b) } 5(16) &< \left(\frac{y}{5}\right)5 \\
 80 &< y \\
 y &> 80
 \end{aligned}$$



$$\begin{aligned}
 \text{c) } \frac{48}{-8} &\geq \frac{-8b}{-8} && \text{flip when mult/div} \\
 -6 &\leq b && \text{by negative!} \\
 b &\geq -6
 \end{aligned}$$

