

Unit 1 Test Review

Topics:

- Translating and Writing Expressions
- Defining Variables and Writing Equations/Inequalities
- Algebraic Properties → matching
- Classifications of Real Numbers
- Order of Operations GEMD AS
- Distribution and Combining Like Terms
- Solving Equations
 - One Step
 - Two Step
 - Multi Step
 - Proportions (Variables in Denominator) → cross mult
 - Clearing Fractions → mult by LCM
 - Special Cases (Infinite/No Solution)
- Literal Equations

Simplify:

$ \begin{aligned} & -4(3+2^3)+3+2 \\ & -4(3+8)+3+2 \\ & -4(11)+3+2 \\ & -44+3+2 \\ & -39 \end{aligned} $	$ \begin{aligned} & 6 \cdot [3-(2+1 \cdot 3)] \div 2 \\ & 6 \cdot [3-(2+3)] \div 2 \\ & 6 \cdot [3-5] \div 2 \\ & 6 \cdot [-2] \div 2 \\ & -12 \div 2 = \boxed{-6} \end{aligned} $
$ \begin{aligned} & (9x+4)-(4x-7) \\ & \underline{9x+4} \quad \underline{-4x+7} \\ & 5x+11 \end{aligned} $	$ \begin{aligned} & 3(1-7x)+4x+2 \\ & \underline{3-21x+4x+2} \\ & \boxed{-17x+5} \end{aligned} $

- Solve:

$4 + 2x = 2(x - 3) + 2$ $4 + 2x = 2x - 6 + 2$ $4 + 2x = 2x - 4$ $4 = -4$ false No Sol.	$\frac{x}{10} - 1 = -31$ $\frac{x}{10} = -30$ $x = -300$	$\left[\frac{x}{2} + 7 = \frac{x}{3} + 9 \right] \times 6$ $\frac{6x}{2} + 42 = \frac{6x}{3} + 54$ $3x + 42 = 2x + 54$ $3x - 2x = 54 - 42$ $x = 12$
$4x - 3(x + 2) = 5(4 - x)$ $4x - 3x - 6 = 20 - 5x$ $x - 6 = 20 - 5x$ $x + 5x = 20 + 6$ $6x = 26$ $x = \frac{13}{3}$	$r - 5x = t$ for x $-5x = t - r$ $x = \frac{t - r}{-5}$	$2x + cd = xy + 1$ for x $2x - xy = 1 - cd$ $x(2 - y) = 1 - cd$ $x = \frac{1 - cd}{2 - y}$
$\frac{5}{x} = \frac{2}{16}$ $5(16) = 2x$ $80 = 2x$ $x = 40$	$\frac{4}{(p+9)} = \frac{5}{p}$ $4p = 5(p+9)$ $4p = 5p + 45$ $-p = 45$ $p = -45$	$\frac{P}{2} = \frac{1}{2}(l+w)$ for l $\frac{P}{2} = \frac{1}{2}l + \frac{1}{2}w$ $\frac{P}{2} - \frac{1}{2}w = \frac{1}{2}l$ $l = \frac{P}{2} - w$

- Circle the error, then find the correct solution:

$$\begin{aligned}
 2(x - 4) - 4x &= -6x + 9x + 4 \\
 2x - 8 - 4x &= -6x + 9x - 4 \\
 -2x - 8 &= 3x + 4 \\
 -8 &= 5x + 4 \\
 -12 &= 5x \\
 -60 &= x
 \end{aligned}$$

$$\frac{-12}{5} = \frac{5x}{5}$$

$$x = -\frac{12}{5}$$

Use the indicated properties of real numbers to complete the blanks of the following statements.

$$50 + 43 = \underline{43} + \underline{50}$$

Commutative property of Addition

$$5 + (7 + 6) = (\underline{5} + \underline{7}) + \underline{6}$$

Associative property of Addition

$$-15 + \underline{0} = \underline{-15}$$

Additive Identity

$$\frac{3}{4} \cdot \underline{\frac{4}{3}} = 1$$

Multiplicative Inverse

$$25 \cdot 4 = \underline{4 \cdot 25}$$

Commutative property of Multiplication

$$7 \cdot (8 \cdot 5) = \underline{(7 \cdot 8) \cdot 5}$$

Associative property of Multiplication

$$11 \cdot (14 + 16) = \underline{11(14) + 11(16)}$$

Distributive property

$$(14 - 20)3 = \underline{3(14) - 3(20)}$$

Distributive property

$$(4 \cdot 12) \cdot 5 = \underline{4 \cdot (12 \cdot 5)}$$

Associative property of Multiplication

Classify the following numbers:

$\sqrt{225} = 15$ N, W, Z, Q, R	$-\frac{18}{6} = -3$ Z, Q, R	0 W, Z, Q, P
1.3426 Q, R	$-7.111111 \dots$ Q, R	3.0 N, W, Z, Q, R

Sara bought 8 chairs and 2 tables for a game room. She bought the tables for \$20 each, and her total bill was \$88. Write and solve an equation to find the price of each chair.

Variable: Let c = cost per chair

Equation: _____

$$8c + 2(20) = 88$$

$$8c + 40 = 88$$

$$\quad -40 \quad -40$$

$$\frac{8c}{8} = \frac{48}{8}$$

$$c = 6$$

Chair = _____

1. Write an algebraic expression with 2 terms, a variable of w , a constant of 7, and a coefficient of 12.

$$12w + 7$$

2. Translate the following to words in 2 different ways: $7 - x \geq 3$

① x less than 7 is at least 3

② The difference of 7 and x is a minimum 3

③ 7 minus x is greater than or equal to 3.

MORE!:

$$3(x-2) + 4(x-3) - 2(x+3) = 125 + \frac{1}{2}(2x-8)$$

$$3x - 6 + 4x - 12 - 2x - 6 = 125 + x - 4$$

$$5x - 24 = x + 121$$

$$\begin{array}{r} 5x - 24 = x + 121 \\ -x \quad +24 \quad -x \quad +24 \end{array}$$

$$4x = 145$$

$$x = \frac{145}{4}$$

$$\frac{3-2x}{5} + 1 = -4x - 7$$

$$\quad \quad \quad -1 \quad \quad \quad -1$$

$$11 - 3(x+5) = 3x + 1$$

$$11 - 3x - 15 = 3x + 1$$

$$-4 - 3x = 3x + 1$$

$$\begin{array}{r} -4 - 3x = 3x + 1 \\ +4 \quad -3x \quad -3x \quad +4 \end{array}$$

$$-6x = 5 \rightarrow x = -\frac{5}{6}$$

$$5 \cdot \frac{3-2x}{5} = (-4x-8) \cdot 5$$

$$3-2x = -20x-40$$

$$\begin{array}{r} 3-2x = -20x-40 \\ +20x \quad +20x \quad -3 \end{array}$$

$$18x = -43$$

$$x = -\frac{43}{18}$$