Name: <u>Answer Key</u>   Date: _____

A. Zito   MATH 416

1) Solve and Check

a) $2x + 6 - 7 = 14 - 3x$

   $2x - 1 = 14 - 3x$

   $2x + 3x = 14 + 1$

   $\dfrac{5x}{5} = \dfrac{15}{5}$

   $x = 3$

/3

$2(3) + 6 - 7 = 14 - 3(3)$

$6 + 6 - 7 = 14 - 9$

$5 = 5$

b) $2a + 3a - 3a + 4a - 3a + 2 = 14$

   $3a + 2 = 14$

   $3a = 14 - 2$

   $\dfrac{3a}{3} = \dfrac{12}{3}$

   $a = 4$

/3

$2(4) + 3(4) - 3(4) + 4(4) - 3(4) + 2 = 14$

$8 + 12 - 12 + 16 - 12 + 2 = 14$

$14 = 14$

c) $-x = 3 + 14x + 3x - 2x + 1$

   $-x = 15x + 4$

   $-x - 15x = 4$

   $\dfrac{-16x}{-16} = \dfrac{4}{-16}$

   $x = -\dfrac{1}{4}$

/3

$-\left(\dfrac{1}{4}\right) = 3 + 14\left(\dfrac{1}{4}\right) + 3\left(\dfrac{1}{4}\right) - 2\left(\dfrac{1}{4}\right) + 1$

$+\dfrac{1}{4} = 3 + \dfrac{14}{4} + \dfrac{3}{4} + \dfrac{2}{4} + 1$

$+\dfrac{1}{4} = 3 - \dfrac{15}{4} + 1$

$\dfrac{1}{4} + \dfrac{12}{4} - \dfrac{15}{4} + \dfrac{4}{4}$

$\dfrac{1}{4} = \dfrac{1}{4}$

d) $16z - 14z = 4 - 6 + 1 + 3$

   $\dfrac{2z}{2} = \dfrac{2}{2}$

   $z = 1$

/3

$16(1) - 14(1) = 4 - 6 + 1 + 3$

$16 - 14 = 2$

$2 = 2$

2) Solve

a) $-3 + 4 = x - 4 - 3 + 7x$

$$1 = 8x - 7$$
$$1 + 7 = 8x$$
$$\frac{8}{8} = \frac{8x}{8}$$
$$x = 1$$

/2

b) $3 - x + 3x - 4x + x = 14 - 2$

$$-1x + 3 = 12$$
$$-1x = 12 - 3$$
$$\frac{-1x}{-1} = \frac{9}{-1}$$
$$x = -9$$

/2

c) $3 + 4 - 3x + 4x = 4x - 3x + 4x - 5$

$$x + 7 = 5x - 5$$
$$x - 5x = -5 - 7$$
$$\frac{-4x}{-4} = \frac{-12}{-4}$$
$$x = 3$$

/2

d) $10x + 15x + 5x = 25x - 5x - 10 - 5 - 15x$

$$30x = 5x - 15$$
$$30x - 5x = -15$$
$$\frac{25x}{25} = \frac{-15}{25}$$
$$x = -\frac{3}{5}$$

/2