Name: _____ Date: _____ Class: _____

Error Analysis – Solving Equations

Directions: Carlos solved the following equations but was having some trouble. In each of the following problems, Carlos made a mistake. See if you can help Carlos fix his mistakes. Examine the problem. When you find the mistake, circle it. Then, in the space provided, explain why it is a mistake, and solve the equation correctly.

Carlos' Work	Explain: What mistake did he make?	Corrected Solution
$3x + 2x - 6 = 24$ $-2x \quad -2x$ $x - 6 = 24$ $+6 \quad +6$ $x = 30$	Misused 2x twice on left side	$5x - 6 = 24$ $+6 \quad +6$ $\frac{5x}{5} = \frac{30}{5}$ $x = 6$
$-2x + 4 = 12$ $-4 \quad -4$ $\frac{-2x}{2} = \frac{8}{2}$ $x = 4$	Divided by positive 2	$\frac{-2x}{-2} = \frac{8}{-2}$ $x = -4$
$4x - 3 = 17$ $+3 \quad +3$ $4x = 20$ $-4 \quad -4$ $x = 16$	Misused 4 instead of divided 4.	$\frac{4x}{4} = \frac{20}{4}$ $x = 5$
$3(2x - 4) = 8$ $6x - 1 = 8$ $+1 \quad +1$ $\frac{6x}{6} = \frac{9}{6}$ $x = 3/2$	Did not distribute 3 • (-4).	$6x - 12 = 8$ $+12 \quad +12$ $\frac{6x}{6} = \frac{20}{6}$ $x = \frac{20}{6}$

Reflect: Which of these mistakes have you made before? Why do you think you have made those mistakes? How can you avoid these common mistakes?

More on back

Challenge Problems

Identify & fix the error. Each problem is done incorrectly.

1) $3 \cdot \left(\frac{x}{3} - 2 = 4\right) \cdot 3$

$x - 2 = 12$

$+2 \quad +2$

$x = 14$

Didn't distribute

Fixed

$x - 6 = 12$

$+6 \quad +6$

$x = 18$

2) $3 \cdot \left(\frac{x}{3} - \frac{x}{4} = 2\right) \cdot 3$

$4 \cdot \left(x - \frac{x}{4} = 6\right) \cdot 4$

$4x - x = 24$

$3x = 24$

$x = 8$

Didn't distribute

$4\left(x - \frac{3x}{4} = 6\right)4$

$4x - 3x = 24$

$x = 24$

3) $x^2 + 1 = 26$

$-1 \quad -1$

$x^2 = 25$

$x = 125$

Didn't square root

$x^2 = 25$

$x = 5$ or $x = -5$