UNIT 2: EQUATIONS & INEQUALITIES

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Objectives: I can solve one and two step equations.

SOLVING EQUATIONS

Substitute the given value of x to find the value of y.

a) Example:
Solve for y: $3x + 8 = y$ if $x=5$

$3(5) + 8 = y$

$15 + 8 = y$

$23 = y$

$y = 23$

like "check"

y is already isolated, just simplify the expression

Find the value of x when given the value of y.

b) Example:
Solve for x: $3x + 8 = y$ if $y=-10$

Like "Solve" Equations

x is not isolated, you must solve the equation

$3x + 8 = -10$

$ -8 \quad -8$

$3x = -18$

$\dfrac{3x}{3} = \dfrac{-18}{3}$

$x = -6$

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1. a) $2x - 4 = y$ if $x = 14$

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

$28 + (-4) = y$

$24 = y$

b) $2x - 4 = y$ if $y=10$

UnDo

| *2 | ÷2 | ② |
| -4 | +4 | ① |

$2x - 4 = 10$
$ +4 \quad +4$

$\dfrac{2x}{2} = \dfrac{14}{2}$

$x = 7$

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2. a) $5m + 12 = n$ if $m = 2$

$5(2) + 12 = n$

$10 + 12 = n$

$22 = n$

b) $5m + 12 = n$ if $n=27$

Un | Do

| *5 | ÷5 | ② |
| +12 | -12 | ① |

$5m + 12 = 27$
$ -12 \quad -12$

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

$m = 3$

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3. a) $3j - 5 = k$ if $j = 6$

$3(6) + (-5) = k$

$18 + (-5) = k$

$13 = k$

b) $3j - 5 = k$ if $k=25$

Un | Do

| *3 | ÷3 | ② |
| -5 | +5 | ① |

$3j - 5 = 25$
$ +5 \quad +5$

$\dfrac{3j}{3} = \dfrac{30}{3}$

$j = 10$

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4. a) $6u - 3 = t$ if $u=4$

$6(4) + (-3) = t$

$24 + (-3) = t$

$21 = t$

b) $6u - 3 = t$ if $t = 27$

Un | Do

| *6 | ÷6 | ② |
| -3 | +3 | ① |

$6u - 3 = 27$
$ +3 \quad +3$

$\dfrac{6u}{6} = \dfrac{30}{6}$

$u = 5$

Ski Club Trip

Read all parts of the extended-response question before you begin. Write your answers to the extended-response question on the answer page. For each extended-response question, use the grid provided to create any required charts or graphs. If a question does not require a chart or graph, write your written response over the grid lines.

The ski club is planning a trip for winter break. They wrote the equation $C = 200 + 10n$ to estimate the cost in dollars of the trip if n students attended. Duncan and Seth both used the equation to estimate the cost for 50 students. Duncan said the cost would be $10,500 and Seth said it would be $700.

Hint! $C = cost$ $n = number\ of\ students$ $C = 200 + 10n$

like "Check"

a) Determine which estimate is correct. Show the calculations needed to find the estimate.

$(+)(-)(*)(\div)$

b) What mathematical operations do you need to perform to calculate the cost of the trip? In what order must you perform the operations?

c) How do you think Duncan and Seth found such different estimates if they both used the same equation?

d) The president of the ski club sent in a check for $950. How many students signed up to go if this is the total cost? Show all calculations. $C = 950$ $n = \square$

Hint!

like "Solve" Un/Do

BE SURE TO LABEL YOUR RESPONSES (a), (b), (c) AND (d).

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Rubric Scoring Guide

a) ½ point: Determining the correct estimate for 50 students
   ½ point: Accurately and completely showing the calculations

b) ½ point: Stating the correct operations needed
   ½ point: Stating the correct order of these operations

c) ½ point: Clearly stating how Duncan and Seth arrived at different estimates

d) ½ point: Determining the correct number of students
   1 point: Accurately and completely showing the calculations (½ point for a minor error)

This problem is worth 10 points.
Score of 4: You will have a 10/10.
Score of 3: You will have a 9/10.
Score of 2: You will have a 7.5/10.
Score of 1: You will have a 5/10.
Score of 0: You will have a 1/10.
No attempt: You will have a 0/10