BUTCHER- TECHNICAL MATH B – 1st PERIOD – OFF-SITE LEARNING PACKET DAY 5

Instructor Nancy Butcher **Date** Day 5

Program/Class Tech Math B **Period** 1, 2, 3

State Indicator/Competency:

- Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
- Explain each step in solving a simple equation as following from the equality of number asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

Instructional Objective(s):

- Students will be able to rearrange an equation of a line to solve for x or y with 80% accuracy.

Materials: Note packet, writing utensil, calculator

Method of Instruction: Independent

Activities:

Rearranging Equations

If needed, an equation can be rearranged so that one of the terms is on its own on one side of the equal sign. The equation can then be solved for that term.

Follow the same steps we used when solving equation.

- *Remove parenthesis*
- *Combine like terms on each side of the equation*
- *Add or subtract to get all unknowns on one side of the equation and all known terms on the other side.*
- *Combine like terms again*
- *Apply the multiplication and division principles of equality*
- *Apply the power and root principles of equality.*

1. Rearrange and solve for x.

$4y = 2x - 6$

$4y + 6 = 2x - 6 + 6$ Add 6 to solve side to get x-term alone

$4y + 6 = 2x$

$\frac{4y+6}{2} = \frac{2x}{2}$ Divide both sides by 2 to solve for x

$2y + 3 = x$ Simplify

$x = 2y + 3$ Equation can be turned around to put x on left

2. Rearrange and solve for y.

$3x + 6y = 12$

$3x + 6y - 3x = 12 - 3x$ Subtract 3x from both sides to get y-term alone.

$6y = 12 - 3x$

$\frac{6y}{6} = \frac{12-3x}{6}$ Divide both sides by 3 to solve for y

$y = \frac{12-3x}{6}$

3. Rearrange and solve for x

$5x - 8y = 13$

$5x - 8y + 8y = 13 + 8y$ Add 8y to both sides to get x-term alone.

$5x = 13 + 8y$

$\frac{5x}{5} = \frac{13+8y}{5}$ Divide both sides by 5 to solve for x

$x = \frac{13 + 8y}{5}$

4. Rearrange and solve for y

$5x - 8y = 13$

$5x - 5x - 8y = 13 - 5x$ Subtract 5x from both sides to get y-term alone

$-8y = 13 - 5x$

$\frac{-8y}{-8} = \frac{13-5x}{-8}$ Divide both sides by -8 to solve for y

$y = \frac{13 - 5x}{-8}$

Practice: Complete the problems below and check your answer.

1. Rearrange and solve for x

Final answer should be:

$x = \frac{12+8y}{4}$ or x = 3 + 2y

2. Rearrange and solve for y

Final Answer should be:

$$y = \frac{12 - 4x}{-8}$$

Try this video for extra help. Copy/Paste URL into browser.

https://www.youtube.com/watch?v=oDosCgJ-L0E

Assignment:

Worksheet Rearranging equations (10 points)

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Rearranging Equations Name: _____

Solve each equation for y

1) $y = -2$

2) $4x + y = -4$

3) $x - 6y = -30$

4) $2x + 3y = 1$

5) $x = 1$

6) $10x - 3y = -24$

7) $3x + y = 4$

8) $5x + 2y = -16$

9) $2x - y = -8$

10) $2x - 3y = 9$