Unit 2 Review – Solving Equations   Name _____ Period _____

Target 1: Explain each step in solving a simple equation.

1. The instructions on the test were to "justify each step."

Molly wrote: **Dolly wrote:**

2.   x – 2 = 17   2. I added 2 to each side   2. X – 2 = 17   2. Addition Prop of Equality
       +2   +2   +2   +2

Which person followed the directions correctly? Explain your answer.

For problems 2 and 3, state your steps for solving and your reason for each step using properties, definitions or rules.

2. What is the solution of $\dfrac{-1}{5}x + 6 = 20.$ Justify each step.   REI.1 (3)

Steps	Reasons

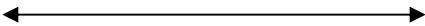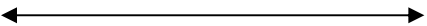**3.** What is the solution of   -8= -4(x – 3).   Justify each step.   REI.1 (3)

Steps	Reasons

4. What is the solution of the equation? $-13(2x - 2) = -26x - 5$

Solve each equation, showing all steps.

5. $-8 + -11x + 12 = -18$	**6.** $\dfrac{b+7}{-8} = -8$	**7.** $\dfrac{4}{7} = \dfrac{x-2}{2x+4}$
8. $\dfrac{2}{3}x + 4 = \dfrac{3}{5}x - 2$	**9.** $5(-8 + 6.2x) = 3x + 9$	**10.** $3(h - 4) = -(12 - 3h)$
11. $\quad 2y - 2 > 10$ Graph ⬅———————➡	**12.** $\quad \dfrac{4}{5}x \le 5$ Graph ⬅———————➡	**13.** $\quad -20t + 25 < 5$ Graph ⬅———————➡

14. Show 2 different algebraic ways to solve the equation. $-2(x - 2) = 4$

Review for Target 2: Create equations in one variable and use them to solve problems and rearrange formulas to highlight a quantity of interest.

For problems 15 - 17,

a) define a variable   b) write an equation to model the problem   c) use your equation to solve.

15. A carpenter is filling in an open doorway with a door and 2 side panels. The entryway is 3.5 m wide. The door will be 1.7 m wide. How wide should the carpenter make the two panels on either side of the door so that the two panels and the door fill the entryway?

16. The Starbucks Store spends $1500 a day in expenses to run the store plus $1.00 on each cup of coffee they sell. They are charging $3.50 for each cup of coffee. How many cups of coffee would they have to sell in one day in order to equal their daily costs?

17. Fred has already earned $50, but he needs to have at least $160 to pay for his new tires.

He can make $22 per hour hauling firewood for his neighbor. Write and solve an inequality that shows the possible number of hours he could haul firewood to be able to buy his tires.

18. a) Solve   **3x + 8y = 60 for y.**   b) Then use your new equation to find y when x = 8.

19. Solve $I = prt$ **for** p.   **20.**   Solve $y = \frac{2}{3}(x - 2)$ **for x.**