Algebra 1: **Unit 1 Review**
Linear Equations

Name _____

Date _____ Per _____

A.REI.3: *I can solve for a single variable from an equation.*

1. Solve and justify your steps $2m - 6 = 20$

Step	Justification
$2m - 6 = 20$	Given

2. Solve and justify your steps: $5(3x + 2) = 25$

Step	Justification
$5(3x + 2) = 25$	Given

3. Solve. $-3x + 21 - 2x = -3(2x - 5)$

A.CED.1: *I can set up an equation or inequality to model a real-world problem with one unknown variable. I can solve this equation to answer the real world problem.*

4. Nate works part time for a moving company. One day he had to move 34 boxes from a truck to inside a house. After moving some boxes, he took a break and told his boss that he has only 15 more boxes to move.

Part A: Write an equation that can be used to find how many boxes Nate moved before his break?

Part B: How many boxes did he move before his break?

5. Lucky's Laundry charges a $10 supply fee and $6 per pound of laundry that customers need washed. The competing company, Suds & Bubbles, only charges a $5 supply fee, but $7.50 for each pound of laundry washed. Write an <u>equation</u> if the total cost of both companies is the same.

A) $10 + 6x = 5 + 7.50x$

B) $10 + 5 = 6x + 7.50x$

C) $10 + 7.50x = 5 + 6x$

D) $10 - 6x = 5 - 7.50x$

A.CED.2: *I can set up an equation to solve a real-world problem with two unknown variables.*

6. Stephanie's parents pay her a base allowance of **$20** and **$3.55 per hour** for extra chores she completes.

Part A: Write the equation for the total week income T (in dollars) where h is the number of hours she worked.

Equation: _____

Part B: Using your equation, evaluate the total amount Stephanie received if she worked for 3 hours.

Answer: _____

7. Nancy is hired as an intern at a dental office. She gets a $50 signing bonus and makes $12 an hour. If h represents the total number of hours that Nancy works and t represents the total amount of money she will make, does the equation $t = h(12+50)$ model the scenario? ***Why or why not?***

(Yes) (No)

Why or why not? Choose one:

(A) The equation is correct.

(B) The equation is incorrect because the 12 should be subtracted from the 50

(C) The equation is incorrect because only the $12 rate should be multiplied by the hours.

(D) The equation is incorrect because only the $50 rate should be multiplied by the hours.

A.CED.4: *I can rearrange a given formula to solve for a single unknown variable.*

8. On a test, Kelly was asked to solve $x+2y=-10$ for y.

Her answer is incorrect. Her work is shown here:

Step	Justification
$x+2y=-10$ $-x \qquad -x$	Given problem Subtraction property of equality
$2y=-10-x$	
$\frac{2y}{2}=\frac{-10}{2}-\frac{x}{2}$	Division property of equality
$y=5+\frac{x}{2}$	Solved for y

Part A: Identify the error Kelly made in her work. Circle the error(s) above and then describe the error.

Part B: Solve the problem correctly and identify the correct solution.

9. Solve for **t**. $d=rt$

A.REI.11: *I can explain why the x-coordinates of the points where the graphs of the equations y=f(x) and y=g(x) intersect are the solutions of the equation f(x)=g(x); find the solutions approximately. Include cases where f(x) and/or g(x) are absolute value functions.*

10. Solve and check. Show all work including check:

$$2|m| = 14$$

Solve:

Check your answer (show your work):

11. Solve and check. Show all work including check:

$$2|x+1| + 4 = 12$$

Solve:

Check your answer (show your work):

12. Barry's walkie-talkie has a range of 2 miles. Barry is traveling on a straight highway and is at mile marker 207.

Part A: choose the correct equation to model this situation

A. $|x - 2| = 207$

B. $x = |2 - 207|$

C. $|207 - x| = 2$

D. $2 = |x - 207|$

Part B: Solve the equation for the maximum and minimum mile marker that Barry's walkie-talkie will reach.