Unit: Linear Equations
Student Handout 3

Name _____

Date _____Pd_____

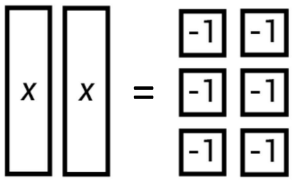
ONE AND TWO-STEP EQUATIONS

Label the different parts of an equation at the right. Then, describe what makes an equation different from an expression.

$$15x + 4 = 60$$

ONE-STEP EQUATIONS	• To solve a one-step equation, _____ the variable by using _____ , or opposite, operations.
TWO-STEP EQUATIONS	• First, use **addition/subtraction** to remove the _____. • Next, use **multiplication/division** to remove the _____. • Tip: If dividing by a fraction, multiply by the _____.

Use the algebra tiles shown at the right to answer a-c.



a. What equation is modeled by the tiles?

b. Find the value of x.

c. How can you check that your solution is correct?

Solve the following one-step equations. Show all work and check your solutions.

1. $\frac{x}{1.5} = 16$

_____

CHECK:

2. $t - 4.25 = -4$

_____

CHECK:

3. $\frac{6}{7}e = 12$

_____

CHECK:

4. $m + 10 = 3.5$

_____

CHECK:

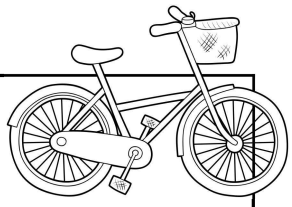
5. To solve the equation shown, Darren thinks you should subtract 2.5 from each side while Eddie thinks you should divide both sides by 2.5. Who do you agree with, and what value of n makes the equation true?

$$2.5n = 50$$

Solve the following two-step equations and show all work.

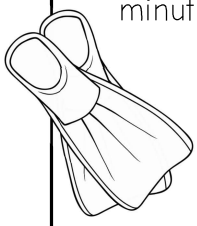
6. $14 + 9m = -13$ _____	7. $-12 = \frac{n}{2} - 6$ _____	8. $\frac{1}{2}b - 6 = -4$ _____
9. $0.5w + 15 = 20$ _____	10. $\frac{d}{1.6} + 31 = 40$ _____	11. $\frac{2}{3}x + 19 = 35$ _____

Apply your knowledge of solving equations to answer 12-15.



12. "Wheels by the Waves" rents bikes to customers for $3.50 an hour plus a $12 fee. If Lucy spent $33 on a bike rental, how many hours (h) did she rent a bike?

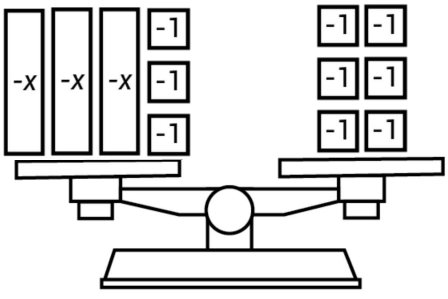
Equation: _____ Solution: _____



13. Paul is scuba diving and is 3.5 feet below sea level. He is descending at a rate of 0.5 feet per minute. If Paul is now at 12 feet below sea level, how many minutes has he been diving?

Equation: _____ Solution: _____

14. Write and solve the equation modeled below.



Equation: _____ Solution: _____

15. An equilateral triangle has side lengths that can be represented by $1.2x - 8$ units.

a. Write an expression to represent the perimeter of the triangle.

b. If the triangle has a perimeter of 12 units, find the value of x.

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ONE AND TWO-STEP EQUATIONS

1. Which of the following is the correct step to solve the equation $-\frac{2}{5}x = 10$?

a. Add $\frac{2}{5}$ to each side of the equation.
b. Divide each side by $-\frac{2}{5}$.
c. Subtract 10 from each side.
d. Divide 10 from each side.

2. Which of the following is a solution to the equation $3 - 4y = 19$?

a. $y = -19$
b. $y = 20$
c. $y = 4$
d. $y = -4$

Solve each of the equations in 3-8.

3. $7m - 17 = 60$

_____

4. $\frac{c}{-9} + 6 = 14$

_____

5. $18 = 5m + 3$

_____

6. $\frac{4}{3}y = 16$

_____

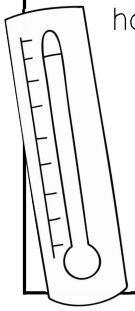
7. $\frac{w}{-2.5} = 8$

_____

8. $\frac{1}{5}x - 2 = 4$

_____

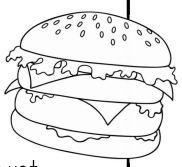
9. In the morning, the water temperature at the beach was 82 degrees. The temperature rose 0.6 degrees each hour. If the water temperature is now 85 degrees, write and solve an equation to find h, the number of hours that have passed.



Equation: _____

Solution: _____

10. While at the beach, Daniel buys lunch for his family from a food stand. He purchases one hot dog for $2.50 and 3 hamburgers. If he spent $13 total, write and solve an equation to find h, the amount each hamburger cost.



Equation: _____

Solution: _____