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Warmup 10/(# of claws a werewolf has • (# of fingers Frankenstein has on one hand – 2 fingers that fell off) + # of eyes a cyclops has)

Can you figure out the solution of each equation?

1) $3x - 5 = -23$

$x = -6$

2) $x + 8 = 2x$

$x = 8$

3) $3x + 10 = 5x$

$x = 5$

Going over the test…

- **NEW RETAKE PROCEDURE:**
- **Take a retake form, corrections sheet, and extra practice sheet**
- **Can take quiz home, but you must tell me if you are doing that. You need to bring the quiz back!**
- **Do not need to meet with me, but it might be a good idea!**
- **PLEASE INDICATE WHICH TASKS YOU ARE PLANNING TO RETAKE ON THE RETAKE FORM!**

Pretest Results

Question 1: 78 out of 79	**(99%)**	**(last year 96%)**
Question 2: 71 out of 79	**(90%)**	**(last year 94%)**
Question 3: 77 out of 79	**(97%)**	**(last year 91%)**
Question 4: 74 out of 79	**(94%)**	**(last year 87%)**

Pretest Results

Question 5: 41 out of 79	**(52%)**	**(last year 49%)**
Question 6: 70 out of 79	**(89%)**	**(last year 88%)**
Question 7: 48 out of 79	**(61%)**	**(last year 66%)**
Question 8: 50 out of 79	**(63%)**	**(last year 52%)**

Pretest Results

Question 9: 28 out of 79	**(35%)**	**(last year 20%)**
Question 10: 11 out of 79	**(14%)**	**(last year 7%)**
Question 11: 35 out of 79	**(44%)**	**(last year 49%)**
Question 12: 13 out of 79	**(16%)**	**(last year 12%)**

What does the data tell us?

Strengths:

- We understand the CORE idea that the solution to an equation is “the number you substitute for the variable to make the equation true”
- Solving 1 and 2-step equations
- Positive numbers
- More of you remembered the distributive property than I expected
- Overall, we are slightly more prepared than last year’s group!

Weaknesses

- We still don’t like fractions
- We don’t like negative numbers
- We’re not sure of what to do when there are variables on both sides
- We’re not sure what to do when “guess & check” gets difficult

p.115 (1 – 9 odd)

1) v = 72

3) k = 24

5) a = -12

7) s = 2

9) n = $\frac{4}{5}$

On this assignment, no work shown = 0.

Table of Contents

1 and 2-Step Equations

Objective:

- Solve 1 and 2 step equations
- Know how to check a solution

Analyzing Equations – solving them mentally

$$+10 = 55$$

What does the frog have to equal?

Analyzing Equations – solving them mentally

$$3x + 10 = 55$$

What does the 3x part have to equal?

Analyzing Equations – solving them mentally

$$\frac{x+5}{2} = 7$$

What does the x + 5 part have to equal?

Analyzing Equations – solving them mentally

$$55 - 2x = 47$$

What does the 2x part have to equal?

Analyzing Equations – solving them mentally

$$\frac{1}{4}x - 18 = 2$$

What does the $\frac{1}{4}x$ part have to equal?

Analyzing Equations – solving them mentally

$$2x - 8 = -2$$

What does the 2x part have to equal?

Analyzing Equations – solving them mentally

$$\frac{3x}{4} = 6$$

What does the 3x part have to equal?

Analyzing Equations – solving them mentally

$$2 \cdot (x - 3) = 42$$

What does the (x – 3) part have to equal?

Analyzing Equations – solving them mentally

$$\frac{x+1}{4} - 3 = 2$$

What does the (x +1) part have to equal?

Mental Math strategies are great…

- …but we will be doing more difficult ones that you will NOT be able to do mentally.
- You need to know the official equation solving-steps so that you can do these harder ones.
- The good news is that the “official” equation solving-steps are based directly on these strategies we have been practicing.
- If you understand these connections well, you will have great success in this unit!

Solve the Equation:

If 3x – 9 is 15, then what is the 3x by itself???

$$3x - 9 = 15$$

$$+9 \quad +9$$

$$3x = 24$$

$$\frac{3x}{3} = \frac{24}{3}$$

$$x = 8$$

Solve the Equation:

$$23 = 33 - 4x$$

Analyze the equation. What does the “4x” part have to equal?

Solve the Equation:

$$\frac{1}{3}x + 3 = 9$$

$-3 \quad -3$

$3 \cdot \frac{1}{3}x = 6 \cdot 3$

$x = 18$

EQUATIONS WITH FRACTIONS: RULES

- To solve an equation, you are trying to get **1x.**
- Any fraction times its reciprocal is 1! This is why you can "get rid" of the fraction by multiplying by the reciprocal.
- If you have mixed numbers, you should change them into improper fractions to make them easier to deal with.
- **Get the term with a fraction by itself BEFORE you multiply by the reciprocal!**
  - **(if not, you have to multiply EVERY term)**

Examples

SOLVE. Check each answer.

1. $4x - 16 = 20$

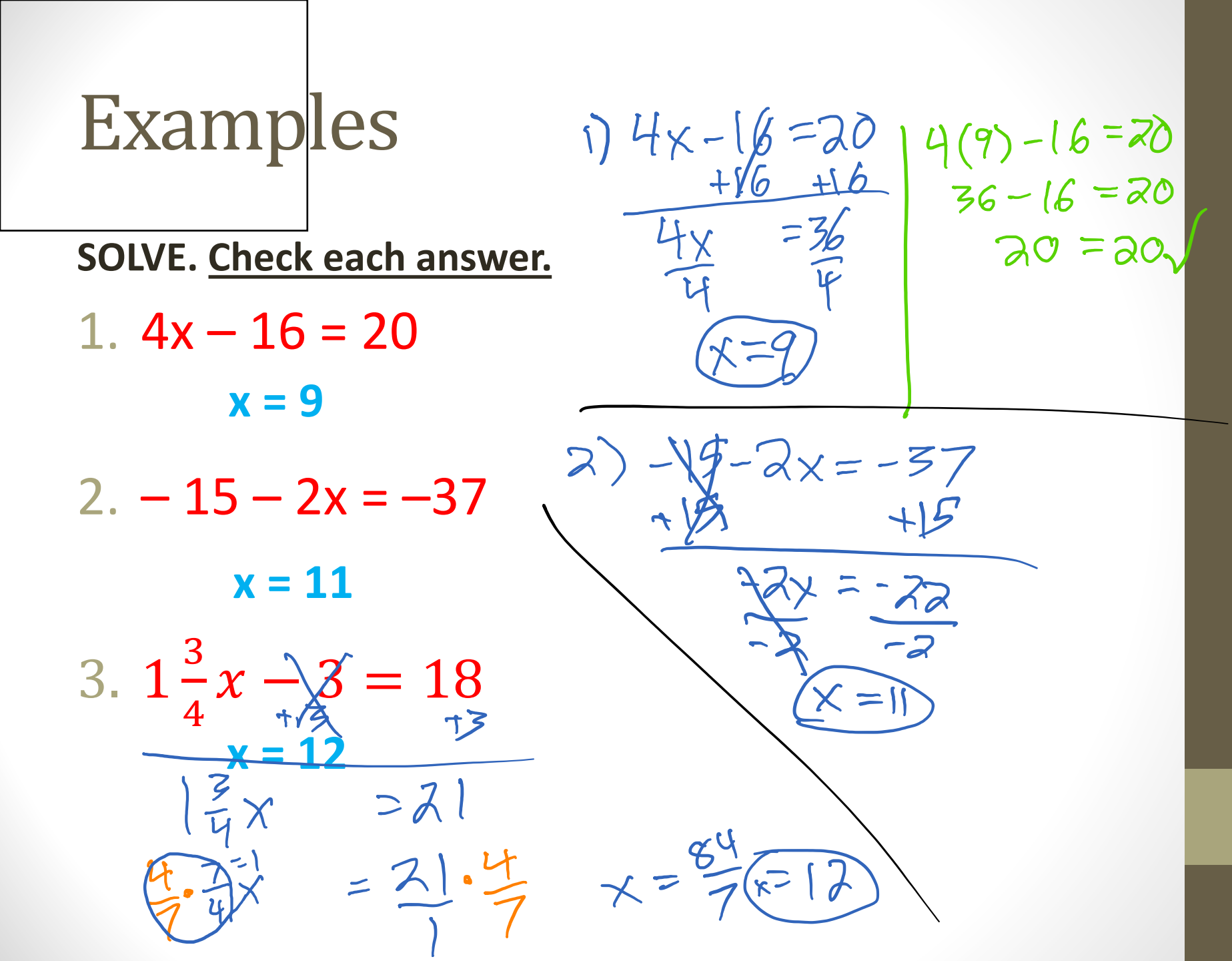
   x = 9

2. $-15 - 2x = -37$

   x = 11

3. $1\frac{3}{4}x - 3 = 18$

   x = 12

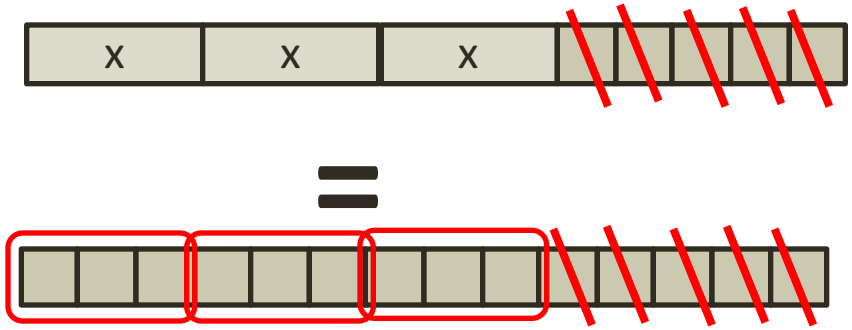


CHECKING YOUR ANSWER

- **Plug your solution back in. See if the equation is true!!!**

Showing with diagrams…

- $3x + 5 = 14$

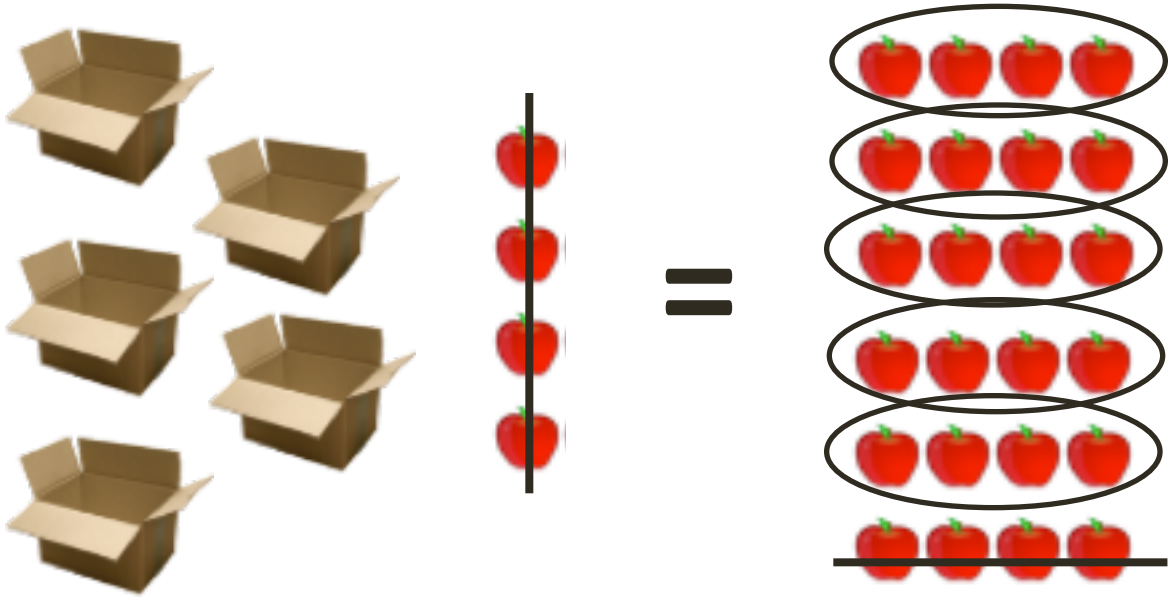


Draw a BAR diagram to represent this equation…

- $17 = 2x + 9$

Boxes and Apples…

$$5x + 4 = 24$$



More examples

SOLVE. Check each answer.

4. $18 - 5x = 30$

$x = -\frac{12}{5}$ or -2.4

5. $\frac{x-10}{3} = 4$

$x = 22$

6. $-19 = 4x - 19$

$x = 0$

HOMEWORK

- p.125 (1 – 9) + check each answer

- **YOU MUST CHECK YOUR ANSWERS!!! (That's what the instructions say!)**