Algebra 1   W-up   Block Week 3

Solve the following equations:

1. $-x+5=17$

2. $\dfrac{2}{3}x-5=-9$

3. Is (-1, 3) a solution to y=5x+8? Show how you know.   Is (-2,-3)? Why or why not?

4. Simplify: $-5 \bullet 5 - 5(-5) - 5^2$
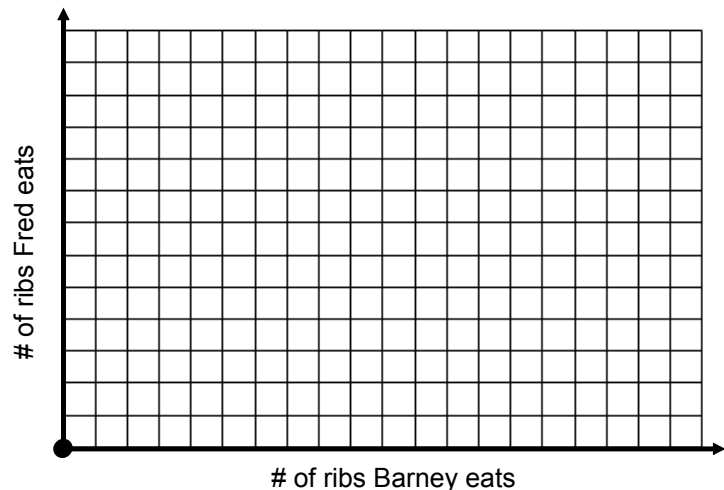
5. Fred can eat twice as many bronto ribs as Barney.

a) Fill in the chart using this info.
   Let x= # of Ribs Barney can eat
   Let y= # of Ribs Fred can eat

x	y
0	__
__	2
2	__
__	7
5	__

b) Write an equation that represents this info.

c) Graph this info

d) If Fred ate 20 ribs, how many did Barney eat?

Expand, Combine and Solve

Because we used the "cups and coins" concept to get started solving equations we have been able to perform two algebraic procedures without naming them. In order to prepare for solving more difficult equations we will now study these procedures more closely. They are called **combining like terms** and using the **distributive property**. These both helped us in the "unbagging" process.

> **Like terms** are terms in an expression that have the same variable(s).
> The variable(s) <u>must</u> match to be *like terms*.
> For example, $5x$ and $3x$ are like terms, but $6x$ and $7y$ are not like terms.
> To **combine like terms** you add them together:
> $$5x + 3x = 8x \qquad 6x + 7y - 2x = 4x + 7y$$

Circle the like terms in each group of expressions:

1. $4x,\ 6y,\ -7x,\ x,\ -6z$ 　　2. $-3m,\ 2r,\ 7n,\ 5s,\ -9m$ 　　3. $-4a,\ c,\ 8b,\ 4d,\ 6t,\ -3u$

Consider which are the like terms in the following groups and again circle the like terms:

4. $3xy,\ 6x,\ -8y,\ -5xy,\ 7yx$ 　　　　5. $4a,\ 6a^2,\ -5ab,\ -b^2,\ 9a^2$

Add like terms in the following expressions:

6. $3x + 5x - x + 7x - 6x =$ 　　　　7. $-7x - 2x + x - 9x =$

8. $3x - 2x - 8x + 5x =$ 　　　　9. $6x + 2x - 6x - x + 3x - 4x =$

To solve an equation, you may need to add like terms before you do anything else. Try solving these equations for the variable x:

10. $3x + 4 + 2x = 19$ 　　　　　　11. $-2x + 6x - 5 = 11$

> The **distributive property** is the mathematical name for the process used to unpack the bags in the cups and coins problems. The *distributive property* multiplies the expression outside of the parentheses to all of the terms inside the parentheses.
>
> $2(x+3) = 2x + 6 \qquad -3(x-6) = -3x + 18 \qquad 4(2x - 6 + x) = 8x - 24 + 4x = 12x - 24$

Use the distributive property to simplfy the following expressions:

12. $-5(2x - 4 + 3x)$ 　　　　　　13. $-2(x - 4) + 3(3x - 2)$

When solving an equation, you may need to use the distributive property before you do anything else. Try solving these equations for the variable x:

14. $3(-2x + 1) = 9$ 　　　　　　15. $-4(2x - 3) = 32$

*   *

SKILL 1:

2-3 Solving Multi- step Equations:

$$4(3c + 2) + 2(c + 3) = 5(c + 11) + 4$$

Start by using the Distributive Property

click *

Next, combine LIKE terms on each side of the equal sign. Technically this is using the Commutative Property of Addition

Practice adding like terms and using the distributive property to simplify the following expressions:

16. $5(2n-3)$ 17. $2x-9-7x+5$

18. $8y-10y+3-y$ 19. $-3(5z+1)+6z$

20. $-2(3m-1)-3(3m-5)$ 21. $4x-5-2(3x-7)$

First, use the distributive property and add like terms and as you solve the following equations. Check your answers at the bottom of the page.

22. $2(y-4)+4y=16$ 23. $2(3x+2)-4x=-16$

24. $10-2n-5=19$ 25. $5m-3-2m=12$

26. $-2a+3(2a-4)=24$ 27. $3c-c-4+2c=16$

28. $2(3x-1)-3(x-4)=-11$ 29. $5z-2(z+3)+2z=14$

Scrambled answers for #22-29: -10, -7, -7, 4, 4, 5, 5, 9

Solving a multi-step equation in a word problem!

Concert Merchandise: Martha takes her niece and nephew to a concert. She buys T-shirts and bumper stickers for them. The bumper stickers cost $1 each. Martha's niece wants 1 shirt and 4 bumper stickers, and her nephew wants 2 shirts but no bumper stickers. If Martha's total was $67, what is the cost of one shirt?

Make a plan:

What do you know from the problem?

Bumper sticker cost is

Niece wants 1 shirt, 4 bumper stickers

Nephew wants 2 shirts

Total spent $67

What do you need to know?   Cost of 1 shirt

Cost of niece's stuff + Cost of Nephew's stuff= $67

Define a variable:

Write an eqn & solve:

Time for Chapter 1 Quiz

HW p 106: 21-26, 38, 39

Solve each equation. Check your answer.

21. $3(q - 5) = 2(q + 5)$

22. $8 - (3 + b) = b - 9$

23. $7(6 - 2a) = 5(-3a + 1)$

24. $(g + 4) - 3g = 1 + g$

25. $2r - (5 - r) = 13 + 2r$

26. $5g + 4(-5 + 3g) = 1 - g$

Solve each equation. If the equation is an identity, write *identity*. If it has no solution, write *no solution*.

38. $0.5b + 4 = 2(b + 2)$

39. $-2(-c - 12) = -2c - 12$

Show All of your work below for EACH problem!