Pre-Algebra

Guided Notes

Unit 4

3-1 thru 3-6, 4-3b

Equations

Name _____

Lesson 3-1 Distributive Property

Distributive Property – used to multiply a number by a sum or difference

$a(b + c) =$ _____

Write an equivalent expression and evaluate.

1. $4(5 + 8) =$

2. $3(9 – 5) =$

3. $(6 + 9)\ 2 =$

EX: A painting class costs $80 per person. The cost of supplies is an additional $35 per person.

a.) Write 2 equivalent expressions to find the total cost for 7 people to take the class.

b.) Find the total cost.

Use the distributive property to write each expression as an equivalent algebraic expression.

1. $2(x + 4) =$

2. $(y + 3)6 =$

3. $4(x – 2) =$

4. $-2(n – 3) =$

Lesson 3-2 Simplifying Algebraic Expressions

Terms – things being _____ or _____.
EX: 2x + 3y – 9 has 3 terms

Coefficient - _____ in front of variable.
NOTE: y = 1y (but they will not write the 1)

Like terms - must have the _____ _____.

Constant – a term with _____ _____.

You must have _____ _____ to add or subtract.

Simplest form – when there are no like terms and no parentheses.

Identify the terms, like terms, coefficients and constants in the expression 4x – x + 2y – 3

Terms: Like terms:

Coefficients: Constant:

Simplify each expression.

1. 8n + n

2. 9x + 4 + 4x

3. 6x + 4 – 5x – 7

4. –y + 2(x + 3y)

EX: You worked 4 hours more than your friend. Write an expression in simplest form that represents the total hours worked by both of you.

You can find the _____ of a geometric shape by adding the measures of its sides.

EX: Draw a rectangle. Label the length 5x+2 and the width 2x – 1.
Write an expression in simplest form for the perimeter of the rectangle.

Lesson 4-3(b) Factoring with Variables

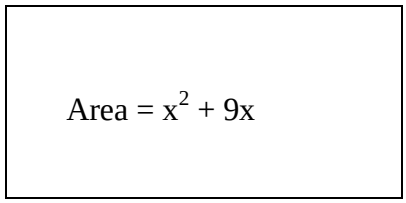
Greatest Common Factor (GCF) – The greatest number or variable that is a factor of two or more numbers or variables.

Factor $4d + 8 = 4(d + 8)$

4 is pulled out in front because that is the common factor. Use Distributive property to see what you need to multiply by and this goes in the parentheses.

Factor $5a - 10a^2 = 5a(1 - 2a)$

Find possible dimensions (length and width) for the rectangle, given the area.



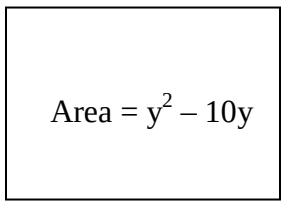
If you factor the area, you will have the length and width.

$x^2 + 9x = x(x + 9)$ so x is length and x + 9 is width

Now try to factor these:

1. $3x + 15$
2. $x^4 - 7x^2$
3. $3x^2 + 6x - 18$
4. $9 + 27x$

Find possible dimensions (length and width) for the rectangle, given the area.



Lesson 3-3 Solving Equations by Adding or Subtracting

Inverse operations _____ each other.

Addition and Subtraction Property of Equality – if you add or subtract the _____ number on each side, the 2 sides remain _____.

Equivalent equations have the same _____

EX: $x + 4 = 7$ and $x - 1 = 2$

****** Instead of subtracting to get rid of adding, **you should add the opposite!**

********** **M U S T S H O W W O R K** **********

Solve and graph solution.

1. $x + 4 = -3$

Solve.

2. $y - 3 = -14$

3. $x - (-5) = 3$

Write an equation and solve.

4. The temperature dropped 17º overnight to 35º F. Find the temperature at the beginning of the night. (Set up an equation with a variable.)

5. The Jefferson Memorial is 129 feet tall. This is 30 feet taller than the Lincoln Memorial. Find the height of the Lincoln Memorial.

Lesson 3-4 Solving Equations by Multiplying or Dividing

Multiplication and Division Property of Equality – if you multiply or divide both sides of an equation by the _____ number, the sides remain _____.

Multiply or divide by the SAME number, not the opposite.

********** **MUST SHOW WORK** **********

Solve.

1. $7x = -56$

2. $-4t = 28$

3. $\frac{y}{-5} = -12$

4. $\frac{n}{20} = 17$

Write an equation and solve.

5. Harry spent $112 on boxes of baseball cards. If he paid $14 per box, how many boxes did he buy?

6. You can read 20 pages of a book in an hour. How long will it take you to read a 280 page book?

Lesson 3-5 Solving Two-Step Equations

Use inverse operations to undo each step in reverse order.

First – undo the adding or subtracting

Second – undo the multiplying or dividing

Solve.

1. $3x - 4 = 17$

2. $3 = \frac{n}{3} + 8$

3. $5 - x = 7$

4. $b - 3b + 8 = 18$

5. $34 = 4m - 2 + 2m$

Lesson 3-6 Writing Two-Step Equations

"is" means _____

You need to know your vocabulary to translate.

Sum – add	Product – Multiply
Difference – Subtract	Quotient - Divide

Translate each sentence into an equation.

1. Twice a number, increased by 5, equals -25. _____
2. Four times a number minus 8 equals 28. _____
3. When 5 is added to the product of a number and 8, the result is 12. _____
4. The quotient of a number and 7 is 10. _____

Translate into an equation. Then solve

5. Nine more than four times a number is 41.

6. Ms Parsons earns $48, 400 per year. That is $4,150 more than three times as much as her daughter earns. How much does her daughter earn?

7. In a canned food drive, Sam collected 12 more cans than Louise. Together, they collected 128 cans. How many cans did Sam collect?