

Lesson 1-1

Order of Operations (p 5-7)

The 4 Basic Operations of Math:

- 1) Add
- 2) Subtract
- 3) Multiply
- 4) Divide

* Mathematicians agreed on an ORDER for the operations so that every problem has only one true answer.

P → Parentheses () There has to be an operation INSIDE

E → Exponents 3^4 ← The exponent tells us how many times to multiply the base number by itself
 $3 \times 3 \times 3 \times 3$

M or D → Multiply or Divide

Do whichever comes first when reading the problem from left to right

ex 1: $12 \div 3 \times 4$

$$4 \times 2$$

$$8$$

A or S → Add or Subtract ex 2: $20 - 10 + 4$

$$10 + 4$$

$$14$$

$$\begin{aligned} \text{ex 3: } & 32 \div 4 + 3 \times 10 \\ & 8 + 3 \times 10 \\ & 8 + 30 \\ & 38 \end{aligned}$$

$$\begin{aligned} \text{ex 4: } & (24 + 8) \div 4 + 4 \\ & 32 \div 4 + 4 \\ & 8 + 4 \\ & 12 \end{aligned}$$

$$\begin{aligned} \text{ex 5: } & 27 \div 3 \times 2 + 4^2 \\ & 27 \div 3 \times 2 + 16 \\ & 9 \times 2 + 16 \\ & 18 + 16 \\ & 34 \end{aligned}$$

$$\begin{aligned} \text{ex 6: } & 2^5 + 7(9-1) \\ & 2^5 + 7(8) \\ & 32 + 7(8) \\ & 32 + 56 \\ & 88 \end{aligned}$$

$$\begin{aligned} \text{ex 7: } & (4+2) \cdot (7+4) \\ & 6 \cdot (7+4) \\ & 6 \cdot 11 \\ & 66 \end{aligned}$$

Lesson 1-1

9/15/11 More Order of Operations (p5-7)



Don't forget: A fraction bar IS THE SAME AS A division bar



ex: $\frac{6(3)}{2}$

~~$\frac{18}{2}$~~ ~~9~~
~~2~~ ~~1~~

$\boxed{9}$

ex: $\frac{24}{2(5-1)}$

$\frac{24}{2(4)}$

$\frac{24}{8}$

$\boxed{3}$

*Simplify (through order of operations) the numerator & denominator independently before dividing.

ex: $\frac{36}{13-9}$

$\frac{36}{4}$

$\boxed{9}$

ex: $\frac{5(4)}{6 \cdot 2 \div 6}$

$\frac{20}{12 \div 6}$

$\frac{20}{2}$
 $\boxed{10}$

ex: $\frac{3^3}{3}(6)$

$\frac{27}{3}(6)$

$9(6)$
 $\boxed{54}$

FIVE STAR
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Lesson 1-2

9/16/11 Expressions (p 11-16)

Expression: A group of numbers and/or variables with a basic operation

ex: $2+5$ $a+b$
 3×7 mn

$7+a$
 $2c$

	$+$	$-$	\times (Factor) (of)	\div
t	add plus sum together more	subtract minus difference take away less	multiply times product	divide quotient
	<ul style="list-style-type: none"> * more than * greater than total 	<ul style="list-style-type: none"> * more less than * subtracted from * fewer than remove 		
	increased by	decreased by	<div style="border: 1px solid red; border-radius: 50%; padding: 10px; display: inline-block; margin-bottom: 10px;"> No multiplication sign needed when multiplying with variables </div> <div style="border: 1px solid red; border-radius: 50%; padding: 10px; display: inline-block;"> The number comes first </div>	

use a variable

ex1: "A number" C plus eight
 $C + 8$
* write it how you read it

ex2: "A number" u multiplied by eleven

$u \times 11$

$11u$

* no times sign needed with this variable

$11u$

* put the # first

ex3: Ten more than a number b

10

$+$

b

! The * are called flip phrases so flip the order

$b + 10$

ex4: The remainder when five is subtracted from

six times a number a

~~$6 \times a$~~
 $6a$

$6a - 5$

Lesson 1-2 (p 11-15)

9/19/11 Evaluating Algebraic Expressions

Algebraic Expression: an expression with variable(s)

Evaluate: solve (work it out)

Evaluate each expression if:

$$a=3 \quad b=6 \quad c=5 \quad d=9$$

ex 1: $10(6c - 3d)$

$$10(6 \cdot 5 - 3 \cdot 9)$$

$$10(30 - 27)$$

$$10(3)$$

$$30$$

① Substitute for the variables

② Solve (show tornadoes) using order of operations

ex 2: $4[(d-a) + c]$

$$4[(9-3) + 5]$$

$$4[6 + 5]$$

$$4[11]$$

$$44$$

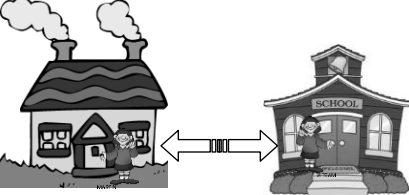
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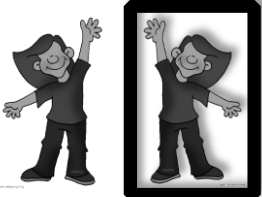
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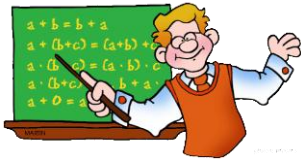
Properties

Properties: _____ that allow us to perform _____ with numbers

Property	Key Word	Example	Abbrev.
C ommutative	_____	$1 + 2 = \underline{\quad} + 1$ $1 \times 2 = 2 \times \underline{\quad}$	(<u> </u> <u> </u>) (<u> </u> <u> </u>)
			

A ssociative	_____	$(1 + 2) + 3 = 1 + (2 + \underline{\quad})$ (<u> </u> <u> </u>) $(1 \times 2) \times 3 = 1 \times (\underline{\quad} \times 3)$ (<u> </u> <u> </u>)	
			

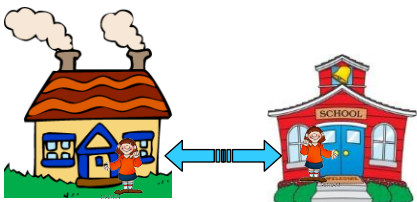
I dentity	_____	$5 + 0 = \underline{\quad}$ (<u> </u> <u> </u>) $5 \times 1 = \underline{\quad}$ (<u> </u> <u> </u>)	
			





Lesson 1-3 (pg 18-23)

Properties Answer Key

Properties: "rules" that allow us to perform operations with numbers

Property	Key Word	Example	Abbrev.
C ommutative 	Order $h + s = s + h$	$1 + 2 = 2 + 1$ $1 \times 2 = 2 \times 1$ Is there Commutative of Subtraction? $5 - 1 = 1 - 5$ $-4 \neq 4$ N	(CA) (CM)

A ssociative 	Groups $(c + u) + p = c + (u + p)$	$(1 + 2) + 3 = 1 + (2 + 3)$ $(1 \times 2) \times 3 = 1 \times (2 \times 3)$	(AA) (AM)
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I denity 	Same $m + 0 = m$ $m \times 1 = m$	$5 + 0 = 5$ $5 \times 1 = 5$	(IA) (IM)
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