Variables and expressions!

Definitions

Variable: a letter that represents an unknown quantity in an algebraic expression or equation. x

Constant: a term in an expression that does not contain a variable. It is a number whose value does not change. 7

Algebraic expression: an expression that contains variables, numbers, and at least one operation. x + 7

Coefficient: the numerical factor of a multiplication expression that contains a variable. 3x

1x + 1x + 1x = 3x

Equation: a mathematical sentence that contains an equal sign stating that two quantities are equal. x + 7 = 11

Constants	Coefficients	Variables	Expressions
-12	3	x	3x + -12
3	4	v	3 + 4v
2	-1	y	2 - y
0	9	z	9z

Grab Bag
Expressions

2 + -1y

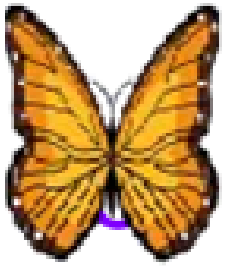
Grab Bag

Evaluating Expressions

Evaluate p + 4

p = 9 

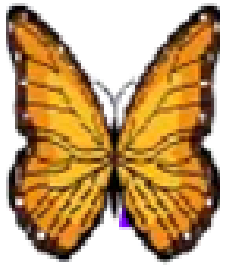
9 + 4 = 13

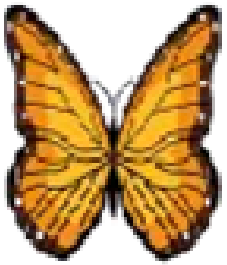
p = 12 

12 + 4 = 16

Evaluating Expressions

Evaluate n - 4

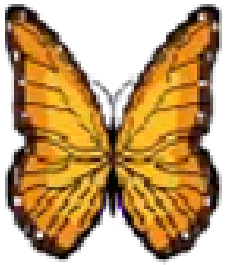
n = 21  21 - 4 = 17

n = 7  7 - 4 = 3

Evaluating Expressions

Evaluate 6b

b = 5



b = 9

b · b

6(5)

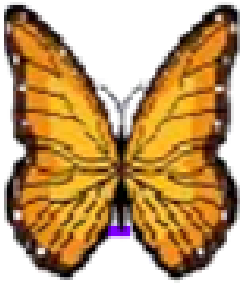
6 • 5 = 30 6 * 5

6(9) = 54

Evaluating Expressions

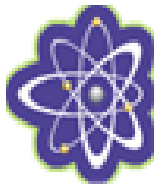
Evaluate $\frac{44}{m}$

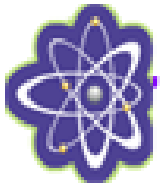
$m = 11$  $\frac{44}{11} = 4$

$m = 2$  $\frac{44}{2} = 22$

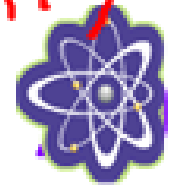
Try 4 on your own

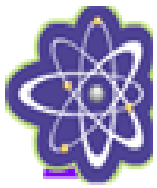
Evaluate the following when k = 4

1. k + 12 =  4 + 12

2. 21 - k =  21 - 4

21 + (-1k)

3. 5k =  5(4)

4. $\frac{k}{2}$ =  $\frac{4}{2} = 2$

Two variables . . .

$\frac{5}{d} + 2c =$

when d = 5 and c = 4

$\frac{5}{5} + 2(4) = 9$

$1 + 8 = 9$

Two variables . . .

$$\frac{8}{d} + 5c =$$

when d = 2 and c = 6

$$\frac{8}{2} + 5(6)$$

$$4 + 30 = 34$$

Two variables . . .

$$\frac{20}{d} + 2c =$$

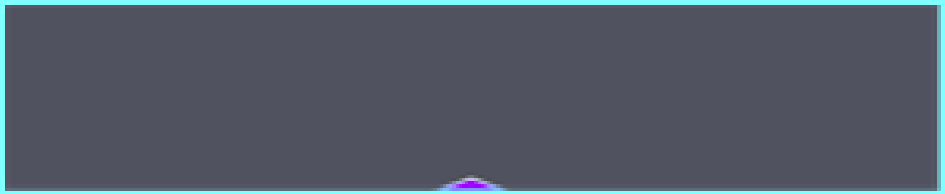
when d = 10 and c = 2

$$\frac{20}{10} + 2(2) =$$

$$2 + 4 = 6$$

P E M D A S

grouping symbols



Evaluating Expressions using Order of Operations

$h - 5 + h^2 =$

when $h = 7$

step 1 : substitute first

step 2 : P E M D A S

$7 - 5 + 7^2$

$7 - 5 + 49$

$2 + 49 = 51$

Order of Operations involved

$3p + 7^2 \bullet (6 - p)$

when p = 5

$3(5) + 7^2 \cdot (6-5)$

$15 + 49 \cdot 1$

$15 + 49 = 64$

step 1 : substitute first

step 2 : P E M D A S

Order of Operations involved

step 1 : substitute first

step 2 : P E M D A S

$(v - t) + 12 - 2t$

when $v = 5$ and $t = 3$

$(5-3)+12-2(3)$

$2 + 12 - 6$

$14 - 6 = 8$

Order of Operations involved

step 1 : substitute first

step 2 : P E M D A S

$4s + (6 - b) \cdot s^2$

when s = 3 and b = 5

$4(3) + (6-5) \cdot 3^2$

$12 + 1 \cdot 9$

$12 + 9 = 21$