Math 10 Lecture Videos

Section 1.1:
Variable and Mathematical Models

PAUL ANDREW GORGONIO

OBJECTIVES:

- Evaluate algebraic expressions
- Determine whether a number is a solution of an equation
- Translate English sentences into algebraic equations

Objective 1:
Evaluate algebraic expressions

1. Evaluate each expression for x = 5.

$4(x-3)$ $\longrightarrow$ $= 4(x-3)$
$= 4(5-3)$
$= 4(2)$
$= 8$

$\dfrac{6x-15}{3x}$ $\longrightarrow$ $= (6x-15)/3x$
$= (6*5-15)/(3*5)$
$= (30-15)/15$
$= 15/15$
$= 1$

Objective 1:
Evaluate algebraic expressions

2. Evaluate the expression for x = 3 and y = 6

$5(x + y)$ $\longrightarrow$

$$= 5(x + y)$$
$$= 5(3 + 6)$$
$$= 5(9)$$
$$= 45$$

$$\frac{2x + 3y}{2y}$$ $\longrightarrow$

$$= (2x + 3y)/2y$$
$$= (2*3 + 3*6)/(2*6)$$
$$= (6 + 18)/12$$
$$= 24/12$$
$$= 2$$

Objective 2: Determine whether a number is a solution of an equation

1. $x - 8 = 12$; **20** $\longrightarrow$

$x - 8 = 12$
$20 - 8 = 12$
$12 = 12$; **YES!**

2. $4x - 7 = 9$; **3** $\longrightarrow$

$4x - 7 = 9$
$4*3 - 7 = 9$
$12 - 7 = 9$
$5 \neq 9$; **NOT A SOLUTION!**

3. $3(y - 5) = 6$; **7** $\longrightarrow$

$3(y - 5) = 6$
$3(7 - 5) = 6$
$3(2) = 6$
$6 = 6$; **YES!**

Objective 3: Translate English phrases algebraic expressions

Note: Let x represent the number

1. The difference of a number and 6

$$X - 6$$

2. Eight more than four times a number

$$8 + 4x$$

3. Four less than the quotient of a number and 12

$$\frac{x}{12} - 4$$

Objective 3: Translate English phrases algebraic expressions

4. The product of a number and seven is twenty-one

$$7x = 21$$

5. The difference of twice a number and three is equal to twenty-seven.

$$2x - 3 = 27$$

6. Six less than three times a number is the same as the number increased twelve

$$3x - 6 = x + 12$$

OBJECTIVES:

- Evaluate algebraic expressions ✓
- Determine whether a number is a solution of an equation ✓
- Translate English sentences into algebraic equations ✓