ALGEBRAIC EXPRESSIONS

EXPRESSIONS

- An **expression** is different from an **equation.**
- An expression **HAS** NO **equal sign**
- You Simplify an expression

Expression: $w + 4w - 2w$

Equation: $w + 4 = 6$

Examples

1. a number subtracted from five

$5 - x$

2. five less than a number

$x - 5$

- The expression is **evaluated** by **substituting** a GIVEN value for the variable

Examples

If x = 2 evaluate 5 – x

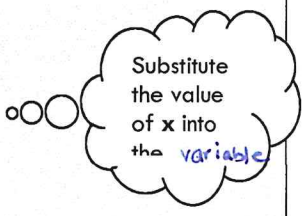
$= 5 - (2)$

$= 3$

2. If x = 1 evaluate x – 5

$= (1) - 5$

$= -4$



Examples

1. **If w = - 7, evaluate: [SUBSTITUTE, THEN SIMPLIFY]**

a) – 3w

$= -3(-7)$

$= 21$

b) w^2

$= (-7)^2$

$= 49$

c) $w^2 + 2w - 4$

$= (-7)^2 + 2(-7) - 4$

$= 49 + 2(-7) - 4$

$= 49 - 14 - 4$

$= 35 - 4$

$= 31$

2. If x = 2 and y = 3, evaluate:

a) $2x + y$

$= 2(2) + (3)$

$= 4 + 3$

$= 7$

b) $3x^2 - 2x + y$

$= 3(2)^2 - 2(2) + (3)$

$= 3(4) - 2(2) + 3$

$= 12 - 4 + 3$

$= 8 + 3$

$= 11$

c) $y^2 - x^2$

$= (3)^2 - (2)^2$

$= 9 - 4$

$= 5$

3. If x = 2 and y = -4, evaluate:

a) $x^2 + y$

$= (2)^2 + (-4)$

$= 4 - 4$

$= 0$

b) $(x + y)^3$

$= [(2) + (-4)]^3$

$= (-2)^3$

$= -8$

c) $x(y - 2)$

$= (2)[(-4) - 2]$

$= 2(-6)$

$= -12$

d) $-0.10x^2 - 3.12x + 10$

$= -0.10(2)^2 - 3.12(2) + 10$

$= -0.10(4) - 3.12(2) + 10$

$= -0.40 - 6.24 + 10$

$= -6.64 + 10$

$= 3.36$

e) $y^2 - 8y + 10$

$= (-4)^2 - 8(-4) + 10$

$= 16 - 8(-4) + 10$

$= 16 + 32 + 10$

$= 48 + 10$

$= 58$

Ratios

A comparison of two quantities measured in the same units

Examples

Write the following ratios in simplest form

a) 10:5 ÷5

= 2:1

b) 16:20 ÷4

= 4:5

c) 24:72 ÷24

= 1:3