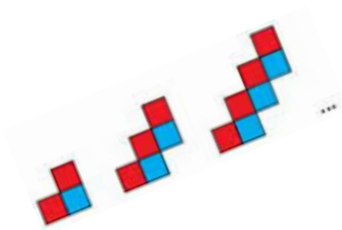Oct. 6

Unit 1 (Part 2)

Patterns & Relations

x = 3

Variables, Constants & Coefficients

⭐A **constant** is value that never changes. (A Number)

    Ex) There will always be 7 days in a week,

⭐ A **variable** is a value that changes. (Letter)
      Ex 1) The number of students present in grade 7 class can change from day to day, or
    Ex 2) the number of days it rains in one week changes.

  - a letter that represent the unknown value

  Ex 1) Let p represents the number of students absent from school today.

  Ex 2) Let a represent the teacher's age.

⭐ A **coefficient** is a number in front of the variable
    represents repeated addition

Repeated Addition is when you write the variable being added to itself.
    Example)   3c = c + c + c

      5w = w + w + w + w + w

Often we translate phrases into expressions in math.

⭐**Algebraic expression** contains a variable and an operation.

$2x + 3$

multiply   add

There are certain words that we associate with the different operations:

Addition	Subtraction	Multiplication	Division
sum	difference	product	quotient
plus	minus	times	divided by
increased by	decreased by	double, twice	Shared
	reduced by	of	half
		triple	

When using variables, you do not always have to include the times sign, it is assumed to be there.

   Ex 1)   6n means 6 x n

   Ex 2)   12t means 12 x t.

6 n   ⟹ n = 2

6 (2)

12

You can simply write the number followed by the variable. (Note: you can not write the variable first, without the times sign. You can not write b4, it has to written as 4b or b x 4).

Ex)

In the expression 8m + 3,

       ■ **8 is the coefficient of the variable**

       ■ **3 is the constant term**

       ■ **m is the variable**

?. { Constant
Coefficient
Variable

Ex1) $3x+2$

Coefficient: 3

Variable: x

Constant: 2

Ex 2)

$v - 7$

Coefficient: 1

Variable: v

Constant: 7

You try

let "n" represent a number
Let n ≡ a number

Always state what your
variable represents

1. Translate the following into expressions:
(a) a number increased by 8

$n + 8$

(b) a number reduced by 21

$n - 21$

(c) the product of a number and 9

multiply $n \times 9$ or $9n$

(d) twice a number <u>increased by 3</u>

*means
multiply by 2*   → $2n + 3$

2. Write the following algebraic expressions as words:
(a) 3 + v

A number increased by 3. OR (*3 more than a number.*)

(b) 8r

A product of 8 and a number. or (*8 times a number.*)

(c) t - 9

A number reduced by 9.

(d) y / 8

A number divide by 8.

1. Translate the following into expressions:
(a) a number increased by 8
(b) a number reduced by 21
(c) the product of a number and 9
(d) twice a number increased by 3

2. Write the following algebraic expressions as words:
(a) 3 + v
(b) 8r
(c) t - 9
(d) y / 8

1a) b = the number
      b + 8

b) c = the number
      c − 21

c) d = the number
      9 × d or 9d

d) y = the number
      2 × y + 3
      or 2y + 3

Homework pg 18 # 1-6

2a) a number increased by 3
b) 8r → 8 times the amount of money
c) t - 9 → the number of marbles
      decreased by 9.
d) y/8 → amount of rainfall divided by 8.

Class/Homework

1) $3x+2$
coeff: ___
var : ___
con : ___

Page 18   #1(a,b,c)

#2

#3(a,b,c,d)

#4(a,b) $28-n$

#5(a,b,c,d,e)   define your variable

#6(a)

b) $(n-5) \times 2$

$2(n-5)$