

Ex 1) Replace each phrase with an equivalent algebraic expression. Use x for the variable.

- a) A number decreased by ten $x - 10$
- b) Seven more than five times a number $5x + 7$
- c) The difference between a number and its cube $x - x^3$
- d) The sum of double a number and eight $2x + 8$
- e) Twice the sum of a number and eight $2(x + 8)$

Ex 2) Joe is driving his car at x miles per hour. Use the variable x to represent each phrase below with an equivalent algebraic expression.

- a) Joe's speed if he drives five miles per hour slower.
 $x - 5$
- b) Joe's speed if he drives ten miles per hour faster.
 $x + 10$
- c) The average of Joe's speed and Judy's speed if Judy drives at fifty five miles per hour.
 $(x + 55) / 2$

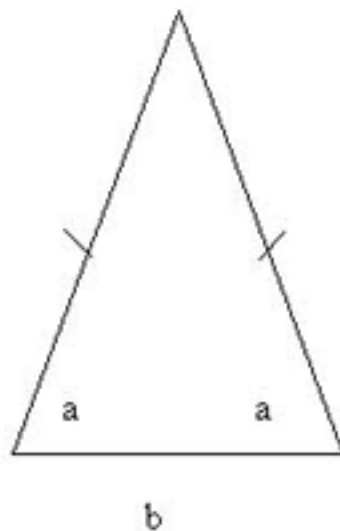
Ex 3) The base of an isosceles triangle has a length of b inches and each base angle measures a° .

a) Find the measure of the vertex angle in terms of a .

$$180^\circ - (a + a)^\circ$$
$$(180 - 2a)^\circ$$

b) If the perimeter is 240 inches, find the length of one of the legs in terms of b .

$$240 = s + s + b$$
$$240 = 2s + b$$
$$2s = 240 - b$$
$$s = 120 - (1/2)b$$



Ex 4) A truck left SomeCity USA at noon and drove South at 55 miles per hour. One hour later, a car left SomeCity driving North at 65 miles per hour. How far apart is the car from the truck X hours after noon? Express your answer in terms of x .

	Distance =	Rate x	Time
Truck	$55x$	55	x
Car	$65(x-1)$	65	$x-1$

Total distance:

$$55x + 65(x-1)$$

$$55x + 65x - 65$$

$$120x - 65$$

Consecutive Numbers:

Consecutive Integers:

$\dots, -3, -2, -1, 0, 1, 2, 3, \dots$

$\dots, n-3, n-2, n-1, n, n+1, n+2, n+3, \dots$

Consecutive Even Integers:

$\dots, -6, -4, -2, 0, 2, 4, 6, \dots$

$\dots, n-4, n-2, n, n+2, n+4, \dots$

if n represents an even Integer

Consecutive Odd Integers:

$\dots, -5, -3, -1, 1, 3, 5, \dots$

$\dots, n-4, n-2, n, n+2, n+4, \dots$

if n represents an odd Integer.

Ex 5) What is the sum of three consecutive odd integers if:

a) the middle one is m ?

$$m-2, m, m+2 \rightarrow (m-2) + m + (m+2)$$

b) the next to the largest is x ?

$$x-2, x, x+2 \rightarrow (x+2) + x + (x+2)$$

Ex 6) There are 45 people in a group. The number of men is six less than twice the number of women:

a) Choose a variable to represent the women.

Let w represent the women

b) Write an expression for the number of men in terms of the variable represented in part (a) above.

The number of men = $2w - 6$

c) Write an equation that describes the above problem.

The sum of the number of men and women is 45...

$$(2w - 6) + w = 45$$

$$3w - 6 = 45$$

$$3w = 51$$

$$w = 17$$