Welcome To College Algebra

Sets of Numbers

Natural--1, 2, 3, 4, . . .

Whole--0,1, 2, 3, 4, . . .

Integers--. . ., -2, -1, 0, 1, 2, . . .

Rational--numbers that can be expressed as fractions
      OR terminating or repeating decimals

Irrational--non-terminating or non-repeating decimals

Real--all rational and irrational numbers

Imaginary--square roots of negative numbers

Complex--can be written in the form a + bi

$N = Natural$
$W = Whole$
$Z = Integers$
$Q = \frac{4}{1}, \frac{2}{3}, 4.325, 7.6\overline{354}$
$I = 8.763894\ldots, \pi, e$
$R = Q + I$
i $\sqrt{-4} = 2i$ $\sqrt{-12} = 2i\sqrt{3}$
C $9-4i,\ 8+0i,\ 0+3i$

real imag.

Writing Algebraic Expressions

Translate each phrase into an algebraic expression:

four less than triple a number $3n - 4$

the sum of a number and seven is squared $(x+7)^2$

the quotient of 50 and eight more than a number $\frac{50}{p+8}$

three times the difference of a number and five, increased by nine   is 11.

$3 \cdot (x-5) + 9 = 11$

verb = equal

Define the needed variables and then create a mathematical model of each statement.

1) The length of a rectangular lawn is 3 ft. more than twice its width.

$$\ell = 3 + 2w$$

$\ell = \text{length}$
$w = \text{width}$

2) Kate's score on her chemistry test was 37 points lower than twice the score on her history test.

$$c = 2h - 37$$

$c = \text{chem}$
$h = \text{history}$

3) In 3 more years, Miguel's grandfather will be six time as old as Miguel was last year.

$$g + 3 = 6 \cdot (m - 1)$$

$g = \text{grandpa's age now}$
$m = \text{Mig's age now}$