***Expressions***

$x^2+3x+2$

An algebraic expression is a mathematical statement that doesn't have an _____ sign and contains terms.

A variable term is made up of a variable and a coefficient. The coefficient is the number in front of the variable.

A constant term does not have a variable. There is only a number.

Underline the variable terms, double underline the constant terms, and circle the coefficients in the following:

$1x$ $-1$

$4x^3 - x^2 + 2x + 4$

$1y^3 + 5y^2 - 7$

**Equations**

$x^2+3=x+10$

An algebraic equation is mathematical statement where two expressions are set equal to one another.

An equation contains variable and constant terms just like an expression.

Underline the variable terms, double underline the constant terms, and circle the coefficients in the following:

$2x^2 + 3x - 8 = x + 9$ $\quad 7x$

$5x^3 - 1x + 7 = 10$

## Writing Algebraic Expressions and Equations:

| Operation | Verbal Phrases |
|---|---|
| + | More than, sum, plus, increases by |
| − | Less than, difference, decreased by, minus |
| • | Product, of, multiplied by, times |
| ÷ | Quotient, divided by |

**Write a verbal expression for each algebraic expression.**

**a.** 2m + 5 = 3m - 7

2 times m plus 5 equals 3 times m minus 7.

b. 4x – 3=2

4 multiplied by x decreased by 3 equals 2.

c. $\frac{6p-3}{2}$

6 times p minus 3 divided by 2.

**Write an algebraic expression for each verbal expression.**

a. t more than 6 equals 10

$t + 6 = 10$

b. 10 less than the product of 7 and f

$7f - 10$

c. 7 more than 11 times a number x

$7 + 11x$ $11x + 7$

d. two fifths of the square of a number f equals 5

$\frac{2}{5}f = 5$

e. the quotient of 45 and r

$45 \div r$ $\frac{45}{r}$

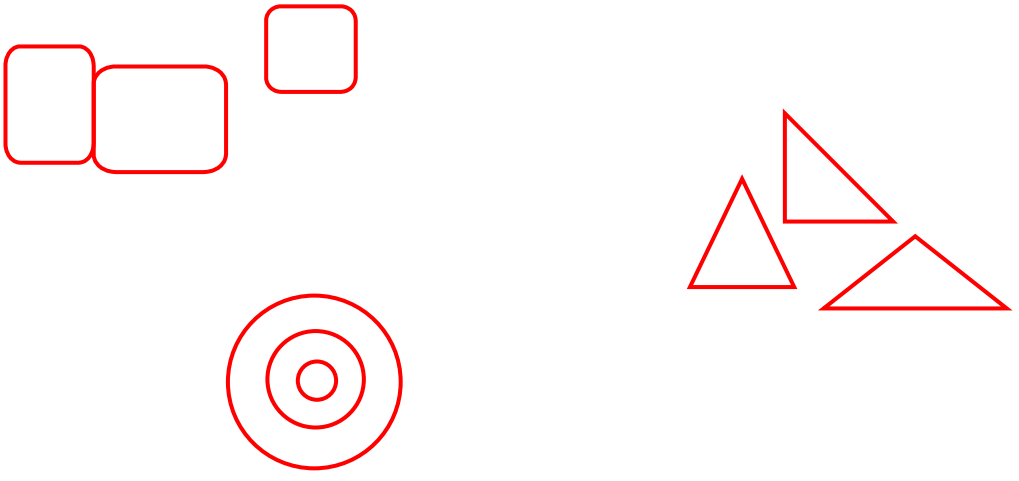
f. 18 decreased by 3 times d equals 4

$18 - 3d = 4$

Jane is making tickets to sell for a school carnival. Student tickets are $3.00 and community tickets are $5.00. She wants to sell enough tickets for the total amount to equal $500. Write an equation to represent this situation.

$3.00s + 5.00c = 500$

Group together the following shapes



$a^1$ $a^2$

**Like Terms**

Terms whose variables and their exponents are the same are called like terms.

like no

$a \oplus a \oplus a \oplus a = 4a$ $(4a^1)$ $\quad a \cdot a \cdot a \cdot a = a^4$

These terms are **NOT** like terms because they have a different exponent.

Like Terms: 4a and a, $x^2$ and $3x^2$, 5 and 7

**NOT** like terms: $a^1$ and $a^3$

Group together the like terms

$5b$ $7b$
$b$

$19$ $4$
$-7$

$-2x^2$ $6x^2$
$x^2$

When adding or subtracting expressions we combine like terms together. After simplifying, always write the exponents in decreasing order. Meaning from the largest exponent to no exponent.

Identify the like terms in the following and then simplify

$$5k^2 - 2k - 4 + k^2 + 6 + 4k$$

$5k^2 + k^2 - 2k + 4k - 4 + 6$

$6k^2 + 2k + 2$

Simplify the following expressions

a. $17u + 25u - 5$

$42u - 5$

b. $6a^2 - 3 + a^2 + 2a + 7$

$6a^2 + a^2 + 2a - 3 + 7$

$7a^2 + 2a + 4$

c. $6n - 2 - 4n + 5$

$6n - 4n - 2 + 5$

$2n + 3$

pg 7: 11-14, 17, 20, 22, 23, 25, 26
pg 36: 11-17 odd, 37-41 odd

11. $4q$ — 4 times q
12. $\frac{1}{8}y$ — $\frac{1}{8}$ of y
13. $15+r$ — 15 plus r
14. $w-24$ — w minus 24
17. $2a+6$ — 2 times a plus 6