EXPONENT

- MULTIPLICATION
  If the two numbers have the same base but different exponents, you can multiply the two numbers by finding the sum of the two exponents
  EXAMPLE $x^2x^4 = x^6$

- DIVISION
  If the numbers have the same base but different exponents, you can divide the numbers by finding the difference.
  $\frac{x^4}{x^2} = x^2$

FRACTIONS

- ADDING/SUBTRACTING Find the if the fractions have common denominators. If not, modifify the fractions so they have common denominators.
  WARNING When changing the denominator of the fraction, do not forget to also change the numerator.
  After finding the common denominators, do the appropriate operations to the fractions.

$$\frac{12}{24} + \frac{12}{24} - \frac{1}{24} = \frac{23}{24}$$

- MULTIPLICATION
  Unlike addition or subtraction, there is no need to find the common denominators. Just multiply the denominator and numerator across.

$$\frac{2}{24} * \frac{3}{5} = \frac{6}{120} \text{ Reduced form } \frac{1}{40}$$

- DIVISION
  Unlike, addition or subtraction, there is no need to find the common denominators. However, in order to divide fractions, its necessary to find the reciprocal of the dividend (Flipping the numerator and the denominator) and multiply the fractions.

$\frac{2}{6} \div \frac{4}{5} =$
Flip the
$\frac{2}{6} \times \frac{5}{4} = \frac{10}{24}$
reduced form of the answer: $\frac{5}{12}$

TRIGONOMETRY

Basic Trig Functions

- sin(x)
- cos(x)

- tan(x)
- sec(x)
- csc(x)
- cot(x)

Basic Trig Identities
Quotient Identity

$$tan(x) = \frac{sin(x)}{cos(x)}$$
$$cot(x) = \frac{cos(x)}{sin(x)}$$

Reciprocal Identity

- $csc(x) = \frac{1}{sin(x)}$
- $sec(x) = \frac{1}{cos(x)}$
- $cot(x) = \frac{1}{tan(x)}$
- $sin(x) = \frac{1}{csc(x)}$
- $cos(x) = \frac{1}{sec(x)}$
- $tan(x) = \frac{1}{cot(x)}$

Pythagorean Identity

- $sin^2(x) + cos^2(x) = 1$
- $sin^2(x) = 1 - cos^2(x)$
- $cos^2(x) = 1 - sin^2(x)$
- $tan^2(x) + 1 = sec^2(x)$
- $sec^2(x) - 1 = tan^2(x)$

Double Angle Trig

- $sin(2\theta) = 2sin(\theta)cos(\theta)$
- $cos(2\theta) = cos^2(\theta) - sin^2(\theta)$
- $cos(2\theta) = 2cos^2(\theta) - 1$