

Solving Equations

EX:

$$2x + 3 = 15$$
$$\quad -3 \quad \quad -3$$

$$\frac{2x}{2} = \frac{12}{2}$$

$$x = 6$$

$$2(3 - 4x) + 5 = 6(7x - 2) + 5$$

$$6 - 8x + 5 = 42x - 12 + 5$$

$$-8x + 11 = 42x - 7$$

$$\quad +8x \quad \quad \quad +8x$$

$$11 = 50x - 7$$
$$\quad +7 \quad \quad \quad +7$$

$$\frac{18}{50} = \frac{50x}{50}$$

$$\frac{18}{50} = x$$

$$x = \frac{9}{25}$$

Exponents

$$3^4 = 3 \cdot 3 \cdot 3 \cdot 3 = 81$$

$$2^3 = 2 \cdot 2 \cdot 2 = 8$$

$$6^1 = 6$$

Scientific Notation

2 20 200 2000

2 $2 \cdot 10^1$ $2 \cdot 10^2$ $2 \cdot 10^3$

$$4 \cdot 10^6 = 4,000,000$$

$$4.12 \cdot 10^6 = 4,120,000$$

$$5.230 \cdot 10^8 = 523,000,000$$

$$\underbrace{.0143} = 1.43 \cdot 10^{-2}$$

Examples:

Number of stars in the Andromeda Galaxy: 200,000,000,000

mass of an alpha particle: 0.000 000 000 000 000 000 000 000 000 006
645 kg

Avogadro's number: 602 000 000 000 000 000 000 000

$$2 \cdot 10^{11}$$

$$6.645 \cdot 10^{-27} \text{ kg}$$

$$6.02 \cdot 10^{23}$$

Inter Alg & Trig: 5.2 - Introduction to Polynomials

monomial: a constant, variable, or a product of constants and variables

Coefficient

Degree

Polynomial: one-variable and in general

Binomial

Trinomial

Degree of a polynomial

Writing a polynomial in descending (or ascending order)

Combining like terms & write in descending order

p 395

5.3 Adding and Subtracting Polynomials

p 406

5.4 Exponent Rules and Multiplying Monomials

Product Rule for Exponents

$$a^m a^n = a^{m+n}$$

Raising a Power to a Power

$$(a^m)^n = a^{mn}$$

p 417

5.5 Multiplying Polynomials; Special Products

Multiplying a Polynomial by a Monomial

Binomial Multiplication

Multiplying $23 \cdot 15$

$$\begin{array}{r} 23 \\ \cdot 15 \\ \hline \end{array}$$

compare with

$$\begin{array}{r} x+4 \\ x+3 \\ \hline \end{array}$$

Multiply Two Binomials

$$(x+4)(x+3)$$

Special Products

Conjugates

Squaring a Binomial

5.6 Exponent Rules and Dividing Polynomials

Quotient Rule

$$\frac{x^6}{x^2}$$

Dividing a Polynomial by a Monomial

Exponent Rules (p 444)

p 445

p 454

p 458