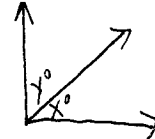


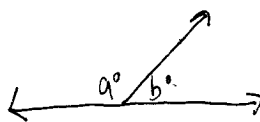
## Geometry:

**Complimentary Angles:** Two angles that add up to  $90^\circ$



$$\angle x + \angle y = 90^\circ$$

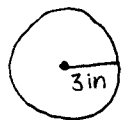
**Supplementary Angles:** Two angles that add up to  $180^\circ$



$$\angle a + \angle b = 180^\circ$$

**Circles:** Area =  $\pi r^2$

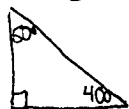
Circumference =  $2\pi r$



$$A = \pi \cdot 3^2 = \pi \cdot 9 = 3.14 \cdot 9 = 28.26 \text{ in}^2$$

$$C = 2 \cdot \pi \cdot 3 = 4\pi \cdot 6 = 3.14 \cdot 6 = 18.84 \text{ in}$$

**Triangle:** The inside angles of a triangle add up to  $180^\circ$



$$90 + 40 + 50 = 180^\circ$$

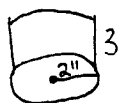
**Volume (prisms):**  $V = \text{Area of Base} \times \text{Height}$



$$\text{Area of } \Delta = \frac{1}{2} \cdot 3 \cdot 4 = 6 \text{ Height}$$

$$6 \cdot 5 = 30 \text{ in}^3$$

**Volume (cylinder):**  $V = \pi r^2 \times \text{Height}$



$$V = \pi \cdot 2^2 \cdot 3 = \pi \cdot 4 \cdot 3 = 12\pi \text{ in}^3$$

## Proportions/Percents

**Proportion:** Two ratios that are equal:  $\frac{3 \text{ apples}}{\$5} = \frac{9 \text{ apples}}{\$15}$

**Set Up:** 1) Write the ratio you know 2) Line up third piece of info by units

**Solving:** Multiply the numbers diagonally, divide by the third number

$$\begin{array}{l} \div 2 \text{ dogs} \\ 9 \text{ cats} \end{array} \quad \begin{array}{l} 5 \text{ dogs} \\ ? \text{ cats} \end{array}$$

$$5 \times 9 = 45 \div 2 = 22.5 \text{ cats}$$

**Percents:**

$$\frac{\%}{100} = \frac{\text{is}}{\text{of}}$$

What is 20% of 6?

$$\frac{20}{100} \times \frac{x}{6}$$

$$20 \times 6 = 120 \div 100 = 1.2$$

$$x = 1.2$$

## Statistics

**Mean:** The "average"—add together all numbers, divide by number of numbers

$$\{6, 3, 2, 5, 6, 2\} \quad \text{Mean} = \frac{24}{6} = 4$$

**Median:** The "middle number" when the numbers are in order:

$$\{2, 2, 3, 5, 6, 6, 8\} \quad \text{Median} = 5$$

**Mode:** The number that occurs most often:

$$\{2, 2, 3, 3, 3, 5, 6\} \quad \text{Mode} = 3$$

## Algebra

Solve for x: Use the opposite operations!

$$\textcircled{1} \quad x + 10 = 12 \\ -10 \quad -10 \\ \hline x = 2$$

$$\textcircled{2} \quad 3 \cdot x = 24 \\ \div 3 \quad \div 3 \\ \hline x = 8$$

$$\textcircled{3} \quad 2 - x = 12 \\ -2 \quad -2 \\ \hline -x = 10 \\ \div -1 \quad \div -1 \\ \hline x = -10$$

$$\textcircled{4} \quad x \div 3 = 9 \\ \cdot 3 \quad \cdot 3 \\ \hline x = 27$$

## Fractions $\rightarrow$ Decimals $\rightarrow$ Percent

Fraction  $\rightarrow$  Decimal: take the top number, divide it by the bottom number.

$$\frac{3}{4} = 4 \overline{) 3.00} \quad .75$$

Decimal  $\rightarrow$  Percent: Move decimal to the right 2 places

$$0.75 = 75\%$$

Percent  $\rightarrow$  Fraction: Put your percent over 100, then simplify.

$$\frac{25}{100} \div 25 = \frac{1}{4}$$