

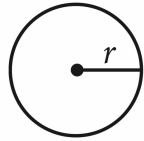
# TIPS & TRICKS

## FOR THE MATH SECTION OF THE SAT

### 1. Circles

Equation of a Circle =  
 $(x - h)^2 + (y - k)^2 = r^2$

Center = (h,k) Radius = r



$$A = \pi r^2$$

$$C = 2\pi r$$

### 2. Arc/Sectors

Length of Arc =  $(2\pi r)(\text{degree measure of center arc})/360$

Area of Arc Sector =  $(\pi r^2)(\text{degree measure of center arc})/360$

### 3. Quadratic Equation

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

### 4. Interior Angles

Formula for Interior Angles =  $180(S-2)$

Triangle = 180 degrees

Square = 360 degrees

### 5. Lines

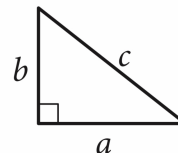
Line Equation  $y = mx + b$

m = slope. b = y-intercept

Slope = Rise / Run =  $(y_2 - y_1) / (x_2 - x_1)$

Midpoint =  $((x_2 - x_1)/2), ((y_2 - y_1)/2)$

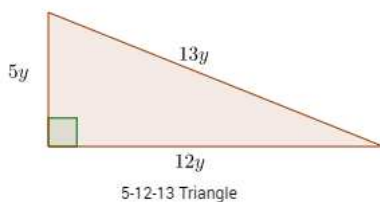
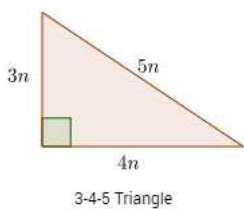
### 6. Pythagorean Theorem



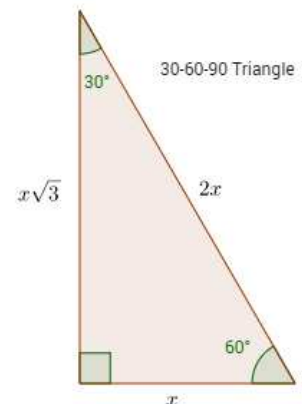
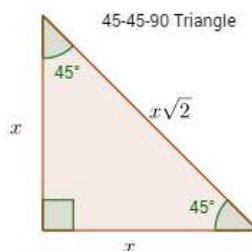
Only used for Right Triangles.

$$c^2 = a^2 + b^2$$

### 7. Special Right Triangles



Examples of Special Right Triangles



# TIPS & TRICKS

## FOR THE MATH SECTION OF THE SAT

### 8. Trigonometry

SOH CAH TOA

1 Radian =  $180/\pi$

1 Degree  $\times 180/\pi$  = Radians

### 9. Probability

Probability of an Outcome = (number of desired outcomes/total number of possible outcomes)

A probability of 1 is guaranteed to happen.  
A probability of 0 will never happen.

### 10. Averages

Mean (Average) = sum of terms/# of different terms

Median = Middle Number

Mode = most common number

Speed = total distance/total time

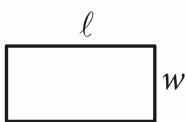
### 11. Percents

Percent Change = (New-Old)/Old

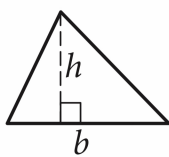
Percent = Part/Whole

Hint: When solving for 11% of a number, solve for 10% and 1% and then add the answers together.

### 12. Areas



$$A = \ell w$$



$$A = \frac{1}{2}bh$$

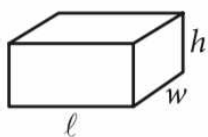
### 13. Quadratic Identities

$$(x^2 - y^2) = (x+y)(x-y)$$

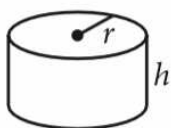
$$x^2 + 2xy + y^2 = (x+y)^2$$

$$x^2 - 2xy + y^2 = (x-y)^2$$

### 14. Volumes



$$V = \ell wh$$



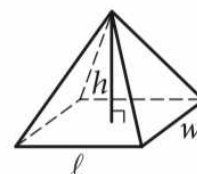
$$V = \pi r^2 h$$



$$V = \frac{4}{3}\pi r^3$$



$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}\ell wh$$