Suggested Formulas to know for the ACT

General Formulas:

Mean (Averages): $\frac{Sum\,of\ the\,items}{Number\,of\ items}$

Median: *The middle number when numbers are arranged in numerical order. If there is an even amount, find the mean of the two numbers in the middle.*

Mode: *The number that occurs most frequently*

Range: *Largest number – Smallest number*

Probability: $\frac{Desired\ outcomes}{Possible\,outcomes}$

Percents: $\frac{is}{of} = \frac{\%}{100}$

$Average\ Speed = \frac{total\ distance}{total\ time}$

$Distance = rate \cdot time$

Algebra:

Slope between two points: $m = \frac{y_2 - y_1}{x_2 - x_1}$ (given two points (x_1, y_1) and (x_2, y_2))

Slope-Intercept Form: $y = mx + b$ (where *m* is the slope and *b* is the y-intercept)

Midpoint: $(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$ (given two points (x_1, y_1) and (x_2, y_2))

Quadratic Formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ (*a*, *b*, and *c* come from $y = ax^2 + bx + c$)

Distance Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ (given two points (x_1, y_1) and (x_2, y_2))

Geometry:

(*l* is length, *w* is width, *h* is height, *r* is radius, *b* is base)

Perimeter of a Rectangle: $P = 2l + 2w$

Area of a Rectangle: $A = lw$

Area of a Parallelogram: $A = lw$

Volume of a Rectangular Solid: $V = lwh$

Area of a Trapezoid: $A = \frac{1}{2}h(b_1 + b_2)$

Area of a Triangle: $A = \frac{1}{2}bh$

Pythagorean Theorem: $a^2 + b^2 = c^2$ or $leg^2 + leg^2 = hypotenuse^2$

Special Right Triangles:

Commented [jv1]: Need an image of 30-60-90 and 45-45-90 triangles with labels

Circumference of a Circle: $C = 2\pi r$

Arc Length of a Sector: $ArcLength = \frac{radians of\ sector}{2\pi} \cdot 2\pi r$ or $ArcLength = \frac{^\circ of\ sector}{360^\circ} \cdot 2\pi r$

Area of a Circle: $A = \pi r^2$

Area of a Sector of a Circle: $A = (\pi r^2)(\frac{^\circ ofcenter}{360^\circ})$ or $A = (\pi r^2)(\frac{radiansofcenter}{2\pi})$

Volume of a Cylinder: $V = \pi r^2 h$

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

Trigonometry:

Sine: $\frac{opposite}{hypotenuse}$

Cosine: $\frac{adjacent}{hypotenuse}$

Tangent: $\frac{opposite}{adjacent}$

Extra Formulas: $sin^2\theta + cos^2\theta = 1$ and $\frac{sin\theta}{cos\theta} = tan\theta$