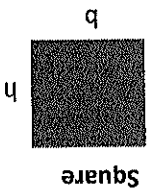


ACT MATH FORMULA SHEET

Geometry

Perimeter for any shape is found by adding up all the exterior sides.



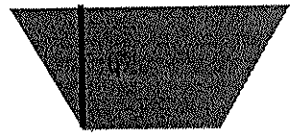
Square

Area = $b \cdot h$
Perimeter = $2b + 2h$



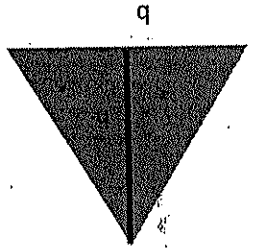
Rectangle

Area = $l \cdot w$
Perimeter = $2l + 2w$



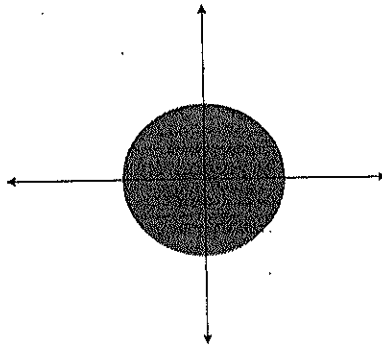
Trapezoid

Area = $(1/2)h(b_1 + b_2)$



Triangle

Area = $(1/2)b \cdot h$



Circle

Circumference = $2\pi r$ or πd
Area = πr^2

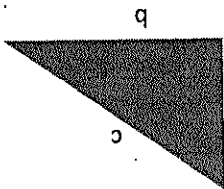
Equation of a Circle

$(x-h)^2 + (y-k)^2 = r^2$

Where (h, k) is the center of the circle and r is the radius of the circle.

Equation of an Ellipse

$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$



Right Triangle: Pythagorean Theorem

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

Triangle Inequality

For any triangle, the third side must be less than the sum of the other two sides and greater than the difference of the other two sides.

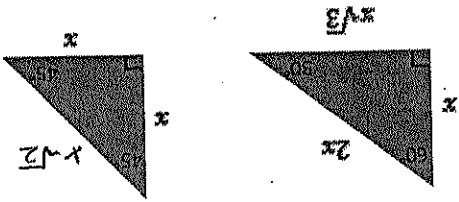
Distance Formula

$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Midpoint Formula

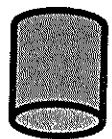
$(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$

Special Right Triangle Ratios



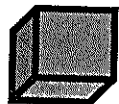
Geometry Cont

Volumes:



Cylinder: $\pi r^2 h$

Cube: s^3



Rectangular Prism: $l \cdot w \cdot h$



Trigonometry

SOH CAH TOA

$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$$

Law of Sines

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

Sum of Angles in Shapes

Triangle=180

Quadrilateral=360

Circle=360

Any regular Polygon=(n-2)180

Algebra

Equation of a Line (Slope-Intercept Form)

$$y = mx + b$$

Where m is the slope, b is the y-intercept, and (x, y) represents any point that falls on that line.

Slope of a Line

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Parallel Lines—have the same slope

Perpendicular Lines—slope is the

opposite reciprocal

Ex: The opposite reciprocal of 2 is

$$-1/2$$

Quadratic Equation: $ax^2 + bx + c = 0$

Quadratic Formula:

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

Percent Increase/Decrease:

$$\frac{\text{changes in amount}}{\text{original amount}}$$

Absolute Value

$$|3| = 3$$

$$|-7| = 7$$

$$|2-8| = |-6| = 6$$