

Geometry Rules and Formulas

Circles

- $\frac{\text{arc}}{\text{circumference}} = \frac{\text{central angle}}{360}$
- Equation of a circle: $(x - h)^2 + (y - k)^2 = r^2$
- "Distance" around a circle is 360 *degrees* or 2π *radians*
- Tangent to a circle forms 90° angle with radius at point of tangency
- $A = \pi r^2$ (given)
- $C = 2\pi r$ (given)

Triangles

- Similar triangles have all corresponding angles the same and all corresponding sides obeying *the same proportion*
- 30-60-90 triangles have sides in ratio $x : x\sqrt{3} : 2x$
- 3-4-5 is a Pythagorean triple that can also show up in multiples: 6-8-10, 9-12-15, 12-16-20
- 5-12-13 is a Pythagorean triple

Trig.

- SOHCAHTOA
- $\sin x = \cos (90 - x)$ ← sine of one acute angle always equals the cosine of the other acute angle

Cylinders/Cones

- Volume of cylinder = $\pi r^2 h$ (given)
- Volume of cone = $\frac{1}{3} \pi r^2 h$. (given)

Rectangles/Rectangular Prisms

- Area of rectangle = lw (given)
- Area of rectangular prism = lwh (given)
- Perimeter = distance around = $2l + 2w$