**Geometry Honor**

**Units: Circle and Volume**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Circle**

Equation of the circle: (x – h)2 + (y – k)2 = r2, where (h, k) is the center.

**Center** – The point inside a circle that is the same distance from every point on the circle.

**Radius** – A segment whose endpoints are the center of a circle and a point on the circle. The distance from the center of a circle to any point on the circle.

**Diameter** – A segment that has endpoints on the circle that passes through the center of the circle.

**Pythagorean Theorem**: a2 + b2 = c2

**Completing the Square** – The method of "forcing" the existence of a perfect square trinomial.

Endpoints

**Distance Formula**: d = $\sqrt{(x\_{1}- x\_{2})^{2}+ (y\_{1}- y\_{2})^{2} }$

**Standard equation of a circle:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Example 1 Writing the Equation of a Circle**

Circle A with a center (4, -2) and the radius 3.

Circle B with a center (3,-5) and radius 12.

Circle C that passes through (-2, 6) and that has the center of (-6, 3).

Circle D that passes through (2, 0) and that has center (4, 0).

**Example 2 Find the Center and Radius**

Circle with equation (x +2)2 + (y – 7)7 = 9

Circle with equation (x – 8)2 + (y + 5)2 = 7

**Example 3 Completing the Square for Circles**

*Given: x*2 – 6*x* + *y*2 + 4*y* = 12.

Find the center and radius.

Given: *x*2 + *y*2 + 32 = 10*x* + 8*y*.

Find the center and radius.

*Given: y*2 + *x*2 = –12*x* + 2*y* + 27

Find the center and radius.

**Volume** - The amount of 3-dimensional space an object occupies. Capacity.

**Solid** – A three-dimension figure.

**Height** – The length of an altitude of a figure.

**Slant Height** – The distance measured along a [lateral](http://mathworld.wolfram.com/Lateral.html) face from the base to the apex along the "center" of the face. In other words, it is the [altitude](http://mathworld.wolfram.com/Altitude.html) of the triangle comprising a lateral face.

**Altitude** – The height.

**Edge** – A segment that is the intersection of two faces of the figure.

Cubic units

Cube = a3

Cylinder = $π$ r2h

Rectangular prism = lwh

Pyramid = $\frac{1}{3}$bh

Cone = $\frac{1}{3}$bh = $\frac{1}{3}π$r2h

Sphere = $\frac{4πr3}{3}$