

# Geometry EOC Cheat Sheet by RednBlueArtist (RednBlueArtist) via cheatography.com/212862/cs/46344/

### Formulas of 2-D and 3-D Figures

Lateral Area, Surface Area & Volume Lateral Area of a Prism: LA = PHSurface Area of a Prism: SA = PH + 2BB = area of base

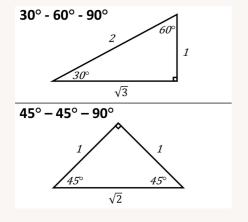
l = slant height Lateral Area of a Cylinder:  $LA=2\pi rH$ Surface Area of a Cylinder:  $SA=2\pi rH+2\pi r^2$ Lateral Area of a Pyramid:  $LA = \frac{Pl}{2}$ Surface Area of a Pyramid:  $SA = \frac{Pl}{R} + B$ Volume of a Prism: V = BH blume of a Cylinder:  $V = \pi r^2 H$ Lateral Area of a Cone:  $LA = \pi r l$ me of a Cone:  $V = \frac{\pi r^2 H}{3}$ ne of a Pyramid:  $V = \frac{BH}{3}$ 

### Pythagorean Theorem

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

If  $a^2 + b^2 = c^2$ , then the triangle is **right** If  $a^2 + b^2 > c^2$ , then the triangle is acute If  $a^2 + b^2 < c^2$ , then the triangle is **obtuse** 

## Special Right Triangles



# Arc Length and Sector Area

Arc Length  $(M/360)*2\pi r$  $(M/360)*\pi r^2$ Sector Area

M = angle measure of sector

### Coordinate Formulas

 $\sqrt{((x_2-x_1)^2+(y_2-y_1)^2)}$ Distance between 2 points Midpoint of a line segment  $(x_2 + x_1)/2, (y_2 + y_1)/2$ Slope Formula  $(y_2 - y_1)/(x_2 - x_1)$ 

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### **Congruent Triangles**

Valid SSS, SAS, ASA, AAS, & HL

**NOT** Valid SSA or the coverse

HL only applies to right triangles

### **Equation of a Circle**

Equation of circle center at origin:  $x^2 + y^2 = r^2$  where r is the radius. Equation of circle not at origin:  $(x-h)^2 + (y-k)^2 = r^2$  where (h,k) is the center and r is the radius.

### Parallel Lines cut by a Transversal

Parallels: If lines are parallel ...



Corresponding angles are equal. m<1=m<5, m<2=m<6, m<3=m<7, m<4=m<8 Alternate Interior angles are equal. m < 3 = m < 6, m < 4 = m < 5Alternate Exterior angles are equal. m<1=m<8, m<2=m<7 Same side interior angles are supp.

m < 3 + m < 5 = 180, m < 4 + m < 6 = 180

Polygon Interior/Exterior Angles	
Sum of Int. Angles	180(n - 2)
Each Int. Angle Measure	180(n - 2)/n
Sum of Ext. Angles	360
Each Ext. Angle Measure	360/n

Conditionals	
Conditional (Original)	if p, then q
Converse	If q, then p
Inverse	If not p, then not q
Contrapositive	If not q, then not p
Biconditional	p if and only if q



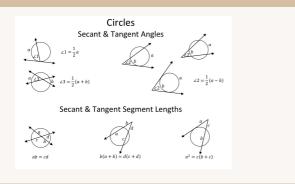
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### Circles



# Trigonometric Ratios

## **Trigonometric Ratios**



$$\sin x^{\circ} = \frac{a}{c}$$

$$\cos x^{\circ} = \frac{b}{c}$$

$$a$$

## Triangle

Scalene no congruent sides

Isosceles 2 congruent sides

Equilateral 3 sides congruent

Equiangular 3 congruent angles (60 degrees)

Acute all acute angle

Right one right angle

Obtuse one obtuse angle

Equiangular = Equilateral

Exterior angle of a triangle equals the sum of the 2 non-adjacent interior angles

Mid-segment of a triangle is parallel to the third side and half the length of the third side

## Transformation Rules

Type of Transformation	Change to Coordinate Point
Vertical translation up d units	$(x,y) \rightarrow (x,y+d)$
Vertical translation down d units	$(x,y) \rightarrow (x,y-d)$
Horizontal translation left c units	$(x,y) \rightarrow (x-c,y)$
Horizontal translation right c units	$(x,y) \rightarrow (x+c,y)$
Reflection over x-axis	$(x,y) \rightarrow (x,-y)$
Reflection over y-axis	$(x,y) \rightarrow (-x,y)$



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