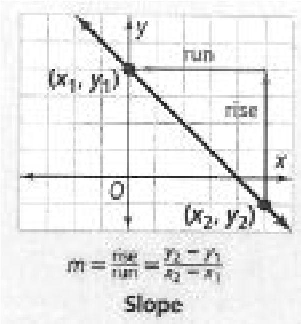
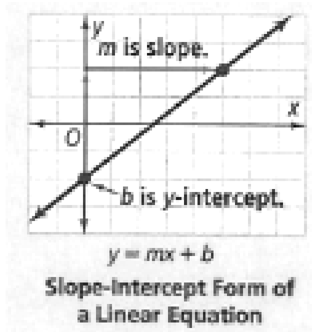
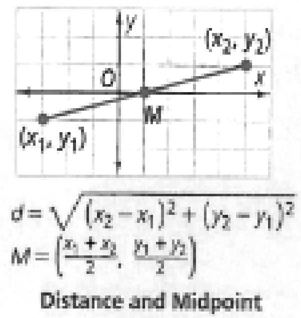
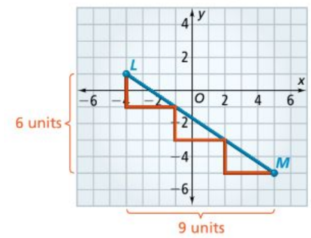
Coordinate Geometry







$\frac{2}{3}$ **the distance from L to M?**



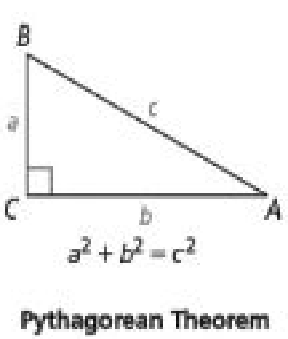
Polygon Angle Theorems

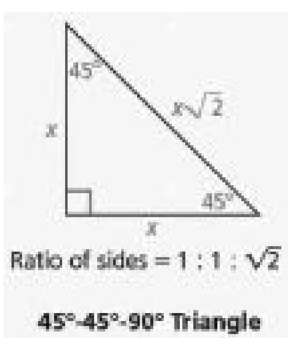
Sum of interior angles	$(n-2)180$
Each interior angle of a regular polygon	$\frac{(n-2)180}{n}$
Each exterior angle of a regular polygon	$\frac{360}{n}$

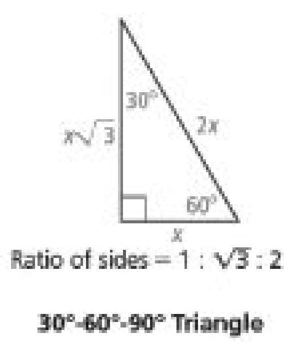
Transformations

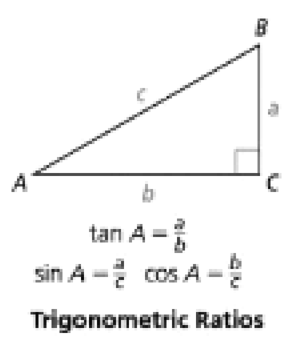
TRANSLATIONS		DILATIONS	
Translation	(x, y) —-> $(x + a, y + b)$	Dilation	(x, y) —-> (kx, ky)
REFLECTIONS		**ROTATIONS**	
Across x axis	(x, y) —-> $(x, -y)$	90 degrees CCW	(x, y) —-> $(-y, x)$
Across y axis	(x, y) —-> $(-x, y)$	180 degrees CCW	(x, y) —-> $(-x, -y)$
Across y = x	(x, y) —-> (y, x)	270 degrees CCW	(x, y) —-> $(y, -x)$
Across y = - x	(x, y) —-> $(-y, -x)$	360 degrees CCW	(x, y) —-> (x, y)

Right Triangles and Trig





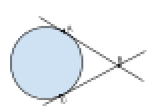
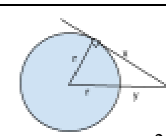




Area

Triangle	$A = \frac{bh}{2}$	Trapezoid	$A = \frac{(b_1+b_2)h}{2}$
Rectangle or parallelogram	$A = bh$	Regular Polygon	$A = \frac{aP}{2}$
Rhombus	$A = \frac{d_1 d_2}{2}$	Central Angle of Regular Polygon	$m = \frac{360}{n}$

Circles

Equation of a Circle	$(x-h)^2 + (y-k)^2 = r^2$	Degrees and Radians	Degrees • $\frac{\pi}{180}$ = Radians Radians • $\frac{180}{\pi}$ = Degrees
Circumference	$C = 2\pi r$ or $C = \pi d$	Area	$A = \pi r^2$
Arc Length	$\ell = \frac{m}{360} \cdot 2\pi r$	Sector Area	$s = \frac{m}{360} \cdot \pi r^2$
ARCS AND ANGLES			
Central Angle	m∠ = m arc	Inscribed Angle	m∠ = $\frac{m\ arc}{2}$
Vertex INSIDE	m∠ = $\frac{m\ arc_1 + m\ arc_2}{2}$	Vertex OUTSIDE	m∠ = $\frac{m\ arc_1 - m\ arc_2}{2}$
SEGMENTS			
Intersection INSIDE	$ab = cd$	Intersection OUTSIDE	$outside(whole) = outside(whole)$
Tangent-Tangent	 $\overline{AB} \cong \overline{BC}$	Tangent-Radius	 $r^2 + x^2 = (r+y)^2$

Surface Area

Prism	$SA = Ph + 2B$	Pyramid	$SA = \frac{Pl}{2} + B$
Cylinder	$SA = 2\pi rh + 2\pi r^2$	Cone	$SA = \pi rl + \pi r^2$
Sphere	$SA = 4\pi r^2$	Hemisphere	$SA = 3\pi r^2$

Volume

Prism	$V = Bh$	Pyramid	$V = \frac{Bh}{3}$
Sphere	$V = \frac{4\pi r^3}{3}$	Cone	$V = \frac{\pi r^2 h}{3}$
Cylinder	$V = \pi r^2 h$		