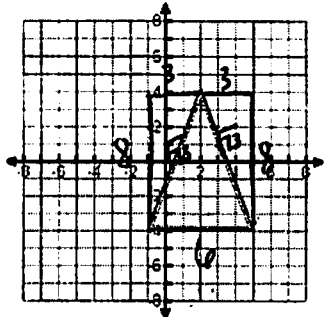
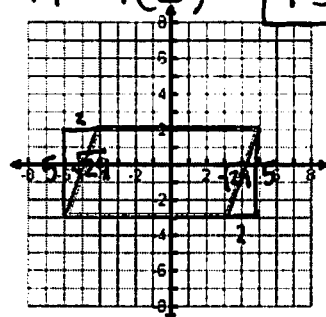


What you need to know & be able to do	Things to remember	Problem	Problem
Midpoint	$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$	1. Find the midpoint of (5, 1) and (6, 7). $\left(\frac{5+6}{2}, \frac{1+7}{2} \right)$ $\left(\frac{11}{2}, \frac{8}{2} \right) \quad \boxed{(5.5, 4)}$	2. Find the coordinates of the other endpoint of a segment with an endpoint of (-2, 2) and a midpoint (8, 3). Endpoint (x, y) $\frac{-2+x}{2} = 8 \quad \frac{2+y}{2} = 3$ $x = 18 \quad y = 4 \quad \boxed{(18, 4)}$
Distance and Applications	<ul style="list-style-type: none"> Find the distance between two people. Pay attention to Direction: North and East are positive, South and West are negative 	3. Reed and Skylar are playing Hide-and-Seek with their brother. Reed runs and hides 30 ft south and 24 ft east of base. Skylar runs and hides 43 ft north and 12 ft west of base. How far apart are Skylar and Reed? (24, -30) (-12, 43) $d = \sqrt{(-12-24)^2 + (43-(-30))^2}$ $= \sqrt{(-36)^2 + (73)^2}$ $= \sqrt{6625} \quad d = 81.39 \text{ ft}$	
	<ul style="list-style-type: none"> Decide if a point lies on a circle: Find the length of the radius and see if the other distance is the same. 	4. Determine whether Point A (-5, 8) lies on the circle whose center is Point C (1, 2) and which contains the Point P (7, -4). Distance C to A: $d = \sqrt{(-5-1)^2 + (2-8)^2}$ $d = \sqrt{72}$ or 8.5 Distance C to P: $d = \sqrt{(7-1)^2 + (-4-2)^2}$ $d = \sqrt{72}$ or 8.5 <div style="border: 1px solid black; padding: 2px; display: inline-block;">YES</div>	
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	<ul style="list-style-type: none"> Use Slope and Distance to prove that a shape is a specific type of quadrilateral or triangle Parallel and Perpendicular: Use Slope Congruent: Use Distance 	5. Given that a rhombus has 4 congruent sides , prove this is a rhombus & parallelogram Lengths AB: 5 BC: $\sqrt{34}$ CD: 5 DA: $\sqrt{34}$ Given that a rhombus has both parallel pair of opposite sides parallel , prove this is a rhombus. Slopes AB: 0 BC: 5/3 CD: 0 DA: 5/3	

<p>Perimeter and Area</p>	<ul style="list-style-type: none"> Perimeter: Distance Around an Object Area of a Parallelogram: Length * Height Area of a Triangle: $\frac{1}{2}(\text{base})(\text{height})$ Area of a Trapezoid: $\frac{1}{2}(b_1 + b_2)h$ 	<p>6. Find the area and perimeter of the figure.</p> <p>$P: 6 + \sqrt{13} + \sqrt{13} = 23.09 \text{ u}$</p> <p>$A: \frac{1}{2}(6)(8) = 24 \text{ u}^2$</p> 	<p>7. Find the area and perimeter of the figure.</p> <p>$P: 9 + 9 + \sqrt{29} + \sqrt{29} = 28.77 \text{ units}$</p> <p>$A: 9(5) = 45 \text{ units}^2$</p> 
<p>Writing the Equation of a Line</p>	<ul style="list-style-type: none"> Two Points: Find the slope, plug in slope and one point into $y=mx+b$ and solve for b, then sub m and b into slope intercept form Parallel: Use the slope and solve for b Perpendicular: Use the opposite reciprocal slope and solve for b 	<p>8. Write the equation of line that passes through the points (-5, -1) and (-3, 1).</p> <p>$m = \frac{1+1}{-3+5} = \frac{2}{2} = 1$</p> <p>$1 = 1(-3) + b$ $y = 1x + 4$</p> <p>$1 = -3 + b$</p> <p>$+3 + 3$ $b = 4$</p>	<p>9. Write the equation of line that passes through the points (2, 5) and (0, -1).</p> <p>$m = \frac{5+1}{2-0} = \frac{6}{2} = 3$</p> <p>$y = 3x + b$ $y = 3x - 1$</p> <p>$-1 = 3(0) + b$</p> <p>$-1 = b$</p>
<p>Partitions</p> <p>$(x_2 - x_1)\left(\frac{a}{a+b}\right) + x_1$</p> <p>$(y_2 - y_1)\left(\frac{a}{a+b}\right) + y_1$</p>	<ul style="list-style-type: none"> Use formulas OR Add the ratios Find the distance between the x's Divide the distance by ratio Draw number line Draw Lines at interval Shade by first number in the ratio Repeat for the y's Write your answer as an ordered pair 	<p>12. Find a point P on the segment with endpoints A(-1, -3) and B(7, 1) that partitions it in a 3:1 ratio.</p> <p>$(7+1)\left(\frac{3}{4}\right) + -1 = 5$</p> <p>$(1+3)\left(\frac{3}{4}\right) + -3 = 0$</p> <p style="border: 1px solid black; padding: 5px; display: inline-block;">$(5, 0)$</p>	<p>13. Find a point T on the segment with endpoints C(-4, -6) and D(2, 3) that partitions it in a 2:1 ratio.</p> <p>$(2+4)\left(\frac{2}{3}\right) + -4 = 0$</p> <p>$(3+6)\left(\frac{2}{3}\right) + -6 = 0$</p> <p style="border: 1px solid black; padding: 5px; display: inline-block;">$(0, 0)$</p>