

SM2 9.4: Intro to Coordinate Geometry

Formulas:

Distance: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ or $d = \sqrt{(\Delta x)^2 + (\Delta y)^2}$

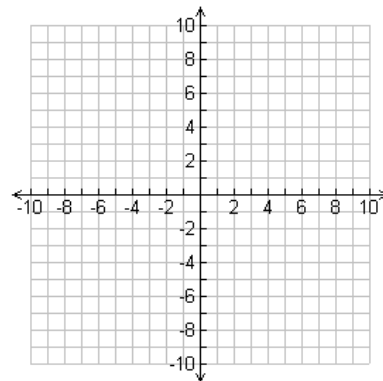
Slope: $m = \frac{(y_2 - y_1)}{(x_2 - x_1)}$ or $m = \frac{\text{rise}}{\text{run}}$ or $m = \frac{\Delta y}{\Delta x}$

Perpendicular slopes are opposite reciprocals. Parallel slopes are equal.

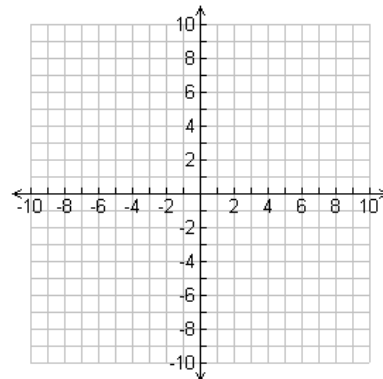
Problems:

For each problem, use what you know about the different shapes and the formulas above to decide if each set of points creates the indicated shapes.

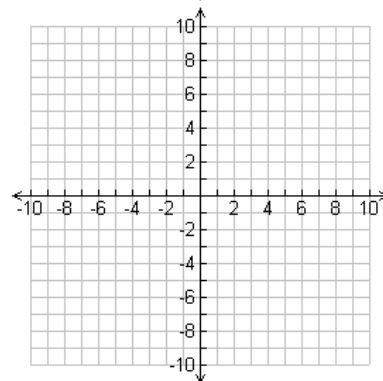
- 1) Determine if the points $A(-4, -1)$ and $B(3, -4)$ are on the same circle center at $C(1, 1)$



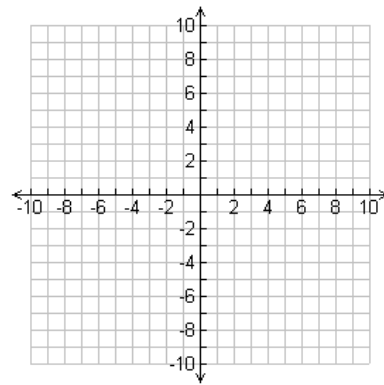
- 2) Determine if the points $A(6, 4)$, $B(4, -3)$, and $C(-2, 3)$ form an isosceles triangle.



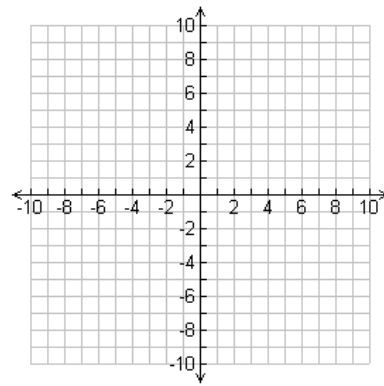
- 3) Determine if the points $E(-4, 4)$, $F(-2, 1)$, $G(3, 1)$, and $H(2, 4)$ form a parallelogram.



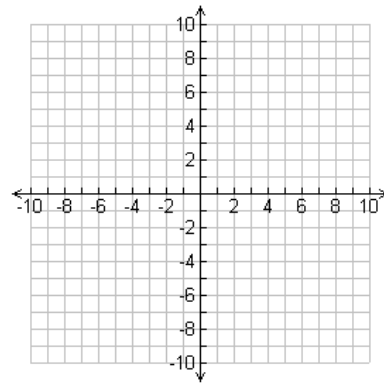
- 4) Determine if the points $P(-2, 1)$, $Q(-2, 7)$, and $R(7, 1)$ form a right triangle.



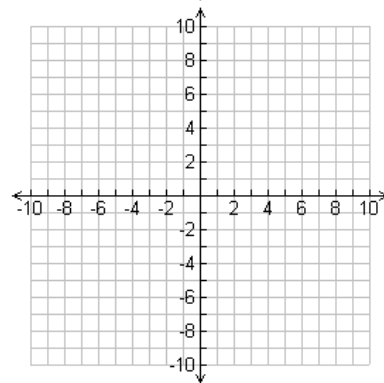
- 5) Determine if the points $A(-2, 1)$ and $B(3, -1)$ are on the same circle centered at $Z(1, 3)$.



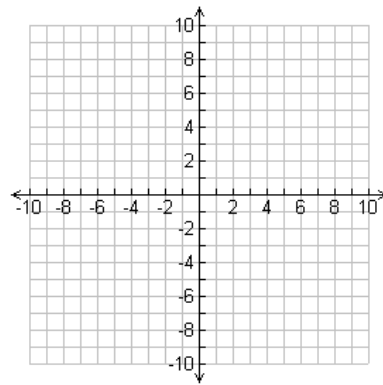
- 6) Determine if the points $A(-2, 9)$, $B(-4, -2)$, $C(1, -12)$, and $D(3, -1)$ form a rhombus.



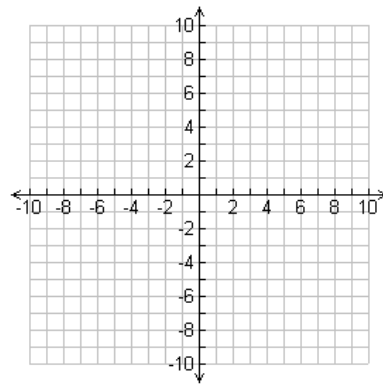
- 7) Determine if the points $H(8, 2)$, $I(11, 13)$, and $J(2, 6)$ form an isosceles triangle.



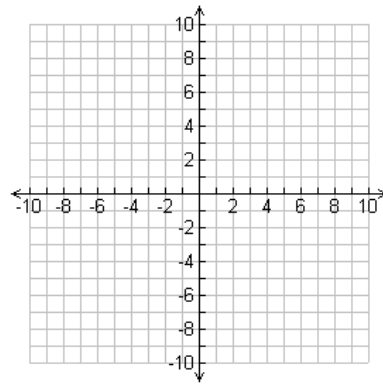
- 8) Determine if the points $A(1, 1)$, $B(3, 4)$, and $C(5, 1)$ form an equilateral triangle.



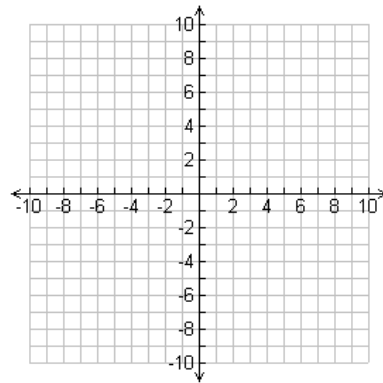
- 9) Determine if the points $R(-4, -2)$, $S(3, -6)$, and $T(0, 4)$ form a right triangle.



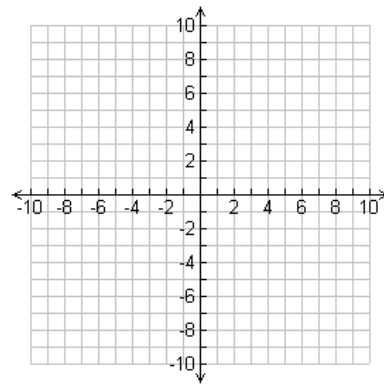
- 10) Determine if the points $A(-3, -1)$, $B(-2, -3)$, $C(6, 1)$, and $D(7, -1)$ form a parallelogram.



- 11) Determine if the points $M(2, 4)$, $N(3, 2)$, $O(-1, 0)$, and $P(-2, 2)$ form a rectangle.



- 12) Determine if the points $P(2, 5)$, $Q(3, 2)$, $R(-2, 1)$, and $S(1, 5)$ form a trapezoid.



- 13) Determine if the points $A(2, 5)$, $B(4, 3)$, $C(2, 1)$, and $D(0, 3)$ form a square.

