

October 29, 2022





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

$$8^2 + 1^2 = c^2$$

$$64 + 1 = c^2$$

$$\sqrt{65} = \sqrt{c^2}$$

$$c = \sqrt{65}$$

# Rotations

$$90^\circ (x, y) = (-y, x)$$

$$180^\circ (x, y) = (-x, -y)$$

$$-90^\circ (x, y) = (y, -x)$$

---

$$\blacktriangleright B(-7, -3) \Rightarrow -90^\circ(-7, -3) = (-3, -(-7)) = \boxed{(-3, 7)}$$

---

$$\blacktriangleright C(5, -6) \Rightarrow 180^\circ(5, -6) = \boxed{(-5, 6)}$$

---

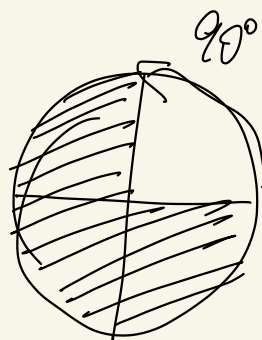
$$\blacktriangleright E(8, 6) \Rightarrow -270^\circ(8, 6) = 90^\circ(8, 6) = \boxed{(-6, 8)}$$

---

$$\blacktriangleright H(-3, 4) \Rightarrow 90^\circ(-3, 4) = (-4, -3)$$

$$J(-6, -5) \Rightarrow 90^\circ(-6, -5) = (5, -6)$$

$$I(7, -2) \Rightarrow 90^\circ(7, -2) = (2, 7)$$



$$-270^\circ = 90^\circ$$

$$\blacktriangleright P(2,3) \Rightarrow 90^\circ(-y, x) = (-(3), 2) = (-3, 2)$$

$$I(7, -7) \Rightarrow 90^\circ(-y, x) = (-( -7), 7) = (7, 7)$$

$$N(2, -7) \Rightarrow 90^\circ(-y, x) = (-( -7), 2) = (7, 2)$$

$$\blacktriangleright -180^\circ = 180^\circ$$

$$T(3, -2) = -180^\circ(-x, -y) = (-3, 2)$$

$$E(2, 4) = -180^\circ(-x, -y) = (-2, -4)$$

$$A(-2, 3) = -180^\circ(-x, -y) = (2, -3)$$

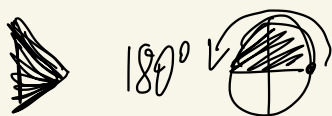
$$M(6, 7) = -180^\circ(-x, -y) = (-6, -7)$$

$$\blacktriangleright 270^\circ \quad \text{⌚} \quad 270^\circ = -90^\circ$$

$$S(-2, -2) = -90^\circ(y, -x) = (-2, 7)$$

$$E(-2, 2) = -90^\circ(y, -x) = (2, 7)$$

$$A(-1, 2) = -90^\circ(y, -x) = (2, 1)$$



$$P(-2, 7) \Rightarrow 180^\circ(-x, -y) = (2, -7)$$

$$O(-2, 3) \Rightarrow 180^\circ(-x, -y) = (2, -3)$$

$$N(-6, 3) \Rightarrow 180^\circ(-x, -y) = (6, -3)$$

$$Y(-5, 6) \Rightarrow 180^\circ(-x, -y) = (5, -6)$$



$$-180^\circ = 180^\circ$$

$$T(6, 0) \Rightarrow -180^\circ(-x, -y) = (-6, 0)$$

$$O(-2, -5) \Rightarrow -180^\circ(-x, -y) = (2, 5)$$

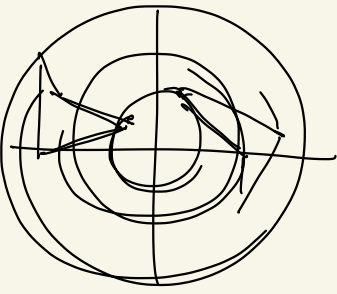
$$P(-2, 5) \Rightarrow -180^\circ(-x, -y) = (2, -5)$$

$$T(-5, 1) \Rightarrow -90^\circ(y, -x) = (1, 5)$$

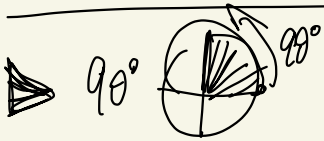
$$R(-7, 7) \Rightarrow -90^\circ(y, -x) = (7, 7)$$

$$A(-1, 7) \Rightarrow -90^\circ(y, -x) = (7, +1)$$

$$M(-5, 4) \Rightarrow -90^\circ(y, -x) = (4, 5)$$



$$\begin{aligned} N(-7, -3) &\Rightarrow 90^\circ(-y, x) = (-(-3), -7) = (3, -7) \\ O(-5, 4) &\Rightarrow 90^\circ(-y, x) = (-(4), -5) = (-4, -5) \\ W(-2, 1) &\Rightarrow 90^\circ(-y, x) = (-(1), -2) = (-1, -2) \end{aligned}$$



$$\begin{aligned} A(3, 3) &\Rightarrow 90^\circ(-y, x) = (-3, 3) \\ R(5, 7) &\Rightarrow 90^\circ(-y, x) = (-7, 5) \\ M(7, 5) &\Rightarrow 90^\circ(-y, x) = (-5, 7) \\ Y(5, 1) &\Rightarrow 90^\circ(-y, x) = (-1, 5) \end{aligned}$$

$$180^\circ$$

$$E(-5, -6) = 180^\circ(-x, -y) = (5, 6)$$

$$A(-6, 4) = 180^\circ(-x, -y) = (6, -4)$$

$$R(-2, 2) = 180^\circ(-x, -y) = (2, -2)$$

$$-270^\circ = 90^\circ$$

$$J(3, 3) = -270^\circ(-y, x) = (-3, 3)$$

$$K(5, -5) = -270^\circ(-y, x) = (5, 5)$$

$$L(-3, -7) = -270^\circ(-y, x) = (7, -3)$$

$$M(3, -3) = -270^\circ(-y, x) = (3, 3)$$

Reflections

$$M(-5, 3)$$

$$E(-4, -4)$$

$$(7, -1)$$

$$(2, -6)$$

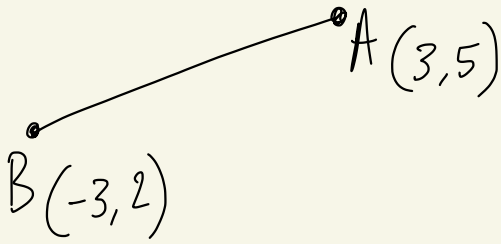
$$\left( \frac{-5+7}{2}, \frac{3-1}{2} \right)$$

$$\boxed{(1, 1)}$$

$$\left( \frac{-4+2}{2}, \frac{-4-6}{2} \right)$$

$$\left( \frac{-2}{2}, \frac{-10}{2} \right)$$

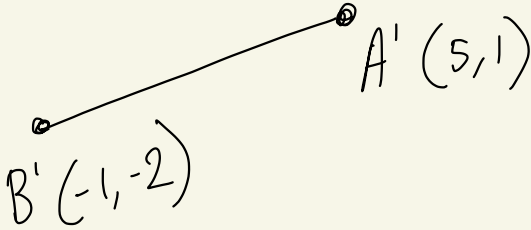
$$\boxed{(-1, -5)}$$



$$B\text{-mid} = \left( \frac{-3-1}{2}, \frac{2-2}{2} \right)$$

$$\left( \frac{-4}{2}, \frac{0}{2} \right)$$

$$= \boxed{(-2, 0)}$$



$$A\text{-mid} = \left( \frac{3+5}{2}, \frac{5+1}{2} \right) = \left( \frac{8}{2}, \frac{6}{2} \right) = \boxed{(4, 3)}$$



$$\bullet A(2,4)$$

$$\bullet B(5,2)$$

$$A\text{-mid} = \left( \frac{2-2}{2}, \frac{4-2}{2} \right)$$

$$= \left( \frac{0}{2}, \frac{2}{2} \right)$$

$$= \boxed{(0, 1)}$$

$$\bullet A'(-2,-2)$$

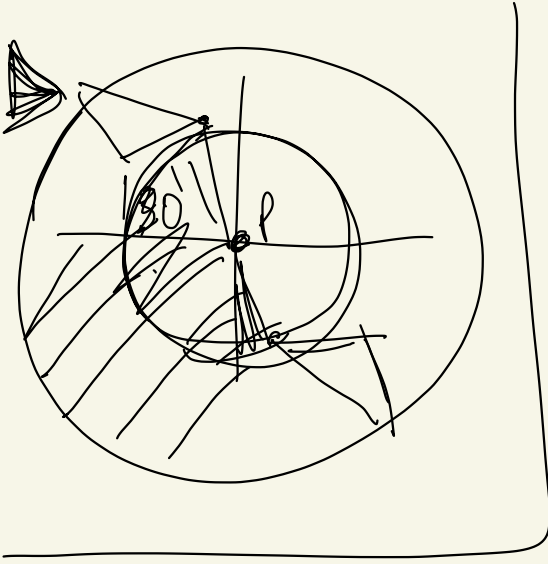
$$\bullet B'(1,-4)$$


$$B\text{-mid} = \left( \frac{5+1}{2}, \frac{2-4}{2} \right)$$

$$= \left( \frac{6}{2}, \frac{-2}{2} \right)$$

$$= \boxed{(3, -1)}$$





  $-90^\circ(y, -x)$

$$E(7, -3) = -90^\circ(y, -x) = (-3, -7)$$

$$L(3, 2) = -90^\circ(y, -x) = (2, -3)$$

$$M(6,7) = -90^\circ(y-x) = (7, -6)$$