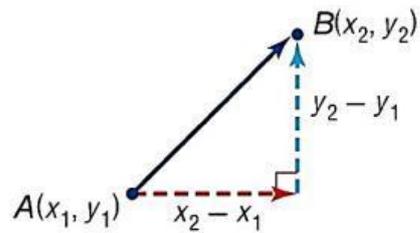


Vector Components and Magnitude

KeyConcept Component Form of a Vector

The component form of a vector \overrightarrow{AB} with initial point $A(x_1, y_1)$ and terminal point $B(x_2, y_2)$ is given by

$$\langle x_2 - x_1, y_2 - y_1 \rangle.$$

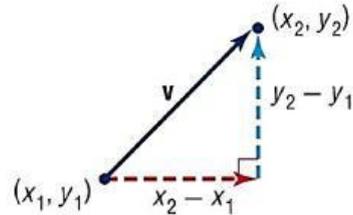


KeyConcept Magnitude of a Vector in the Coordinate Plane

If v is a vector with initial point (x_1, y_1) and terminal point (x_2, y_2) , then the magnitude of v is given by

$$|v| = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}.$$

If v has a component form of $\langle a, b \rangle$, then $|v| = \sqrt{a^2 + b^2}$.



Let $P = (-2, 2)$, $Q = (3, 4)$, $R = (-2, 5)$ and $S = (2, -8)$.

Find the component form and magnitude of the vector.

1. \overrightarrow{PQ}

Magnitude (leave in sqrt form): $\sqrt{\quad}$

2. \overrightarrow{RS}

Magnitude (leave in sqrt form): $\sqrt{\quad}$

3. \overrightarrow{QR}

Magnitude (leave in sqrt form): $\sqrt{\quad}$