

VECTORS

PRE-CALCULUS: by Finney, Demana, Waits and Kennedy

Chapter 6: Applications of Trigonometry

6.1: Vectors in the Plane

What you'll Learn About

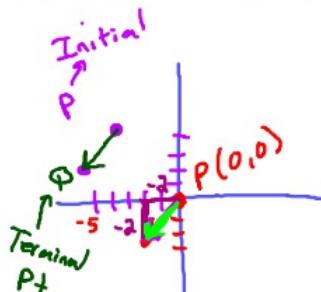
- Two Dimensional Vectors/Vector Operations/Unit Vectors
- Direction Angle/Applications of Vectors

Magnitude
- length
 $= \sqrt{(-2)^2 + (-2)^2} = \sqrt{8}$
 $\boxed{PQ = \langle -2, -2 \rangle}$

Component Form
 $\angle \text{Terminal}_x - \text{Initial}_x$
 $\times \text{Terminal}_y - \text{Initial}_y$

Find the component form and magnitude of the vector where $P = (-3, 4)$, $Q = (-5, 2)$, $R = (-1, 3)$ and $S = (4, 7)$

A) \vec{PQ}
Vector \vec{PQ}



(component form: move initial point to the origin)
 $\langle \text{Terminal}_x - \text{Initial}_x, \text{Terminal}_y - \text{Initial}_y \rangle$

C) $3\vec{QS}$

Initial Terminal

$R(-1, 3)$ $S(4, 7)$

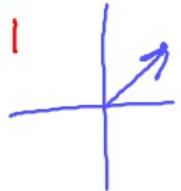
B) \vec{RS}

$\vec{RS} = \langle 4 - (-1), 7 - 3 \rangle$

$= \langle 5, 4 \rangle$

$|RS| = \sqrt{5^2 + 4^2}$

$= \sqrt{41}$



D) $2\vec{QR} + \vec{PS}$