PRE-CALCULUS · CLASSWORK · ADVANCED

Write Vectors in Component Form

SCORE / 25

01 Part A · Practice

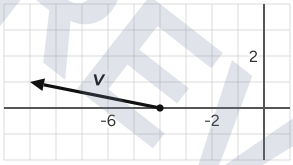
A vector from $P(x_1, y_1)$ to $Q(x_2, y_2)$ is $\langle x_2 - x_1, y_2 - y_1 \rangle = (x_2 - x_1)\mathbf{i} + (y_2 - y_1)\mathbf{j}$; from magnitude and direction: $\langle \|\mathbf{v}\| \cos\theta, \|\mathbf{v}\| \sin\theta \rangle$.

EXAMPLE

Write $\overrightarrow{PQ}$ for $P(2, -1)$, $Q(-3, 4)$.

1. End minus start: $\langle -3 - 2, 4 - (-1) \rangle$.
2. $= \langle -5, 5 \rangle = -5\mathbf{i} + 5\mathbf{j}$.

1 ●○○ Write the vector $\mathbf{v}$ shown in component form and find its magnitude.



2 ●○○ Write $\overrightarrow{PQ}$ in component form for $P(-4, -1)$ and $Q(-1, -10)$.

3 ●○○ Write $\langle -1, -1 \rangle$ using $\mathbf{i}$ and $\mathbf{j}$.

4 ●○○ A vector has magnitude 10 and direction angle 225°. Write it in component form (exact).

5 ●○○ Write $\overrightarrow{PQ}$ in component form for $P(-10, 0)$ and $Q(15, -7)$.

6 ●○○ Write $\langle 1, 13 \rangle$ using $\mathbf{i}$ and $\mathbf{j}$.

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Preview - the full worksheet and its answer key are at primeworksheet.com