

PreCalculus: Vector Basics Review for Quiz 1

Whenever possible, find exact answers. If you must approximate, round to the nearest hundredth.

A vector \mathbf{v} has initial point $R(-9, 2)$ and terminal point $S(-4, 6)$.

1. Write the vector using the following notations:

_____ a) Using its name (“ \mathbf{v} ”)

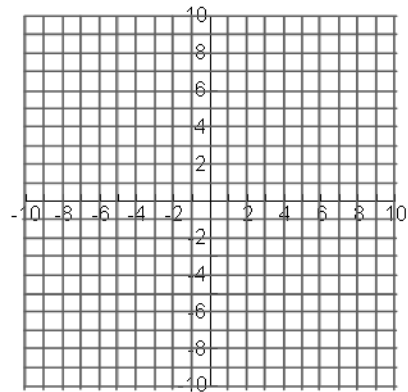
_____ b) Using its points

_____ c) In component form

_____ d) As a linear combination of \mathbf{i} and \mathbf{j} .

2. Find $\|\vec{v}\|$

3. Sketch \mathbf{v} in *standard position*.



4. Find the Direction Angle of \mathbf{v} .

5. Verify whether vectors \mathbf{r} and \overline{ST} are equal. If not, explain why not.

\overline{ST} (with $S(11, -29)$ and $T(2, -23)$) and $\mathbf{r} = \langle -9, 6 \rangle$

6. Find a unit vector in the direction of \mathbf{u} if $\mathbf{u} = -6\mathbf{i} + 11\mathbf{j}$

Given vectors $\mathbf{u} = \langle -5, 2 \rangle$ and $\mathbf{v} = \langle -6, 12 \rangle$, find the following.

7. $2\mathbf{v} + 4\mathbf{u}$

8. $5\mathbf{v}$

9. $5(\mathbf{u} - \mathbf{v})$

10. Find the component form of the vector \mathbf{w} with $\|\mathbf{w}\| = 15$ in the same direction as $\mathbf{u} = \langle 4, 3 \rangle$.

Find the direction angle of the vector.

11. $\mathbf{v} = \langle -8, -4 \rangle$

12. $\mathbf{w} = 12\mathbf{i} - 10\mathbf{j}$

13. A vector has magnitude 8 and direction angle 136° . Write the vector in component form.