



The component form of vector \vec{v} is given. Find the magnitude and direction of \vec{v} .
Write magnitude as a simplified radical and direction in degrees, rounded to the nearest hundredth.


1. $\vec{v} = \langle \sqrt{3}, 1 \rangle$ $\theta = \tan^{-1}(\frac{1}{\sqrt{3}})$
 $\|\vec{v}\| = \sqrt{(\sqrt{3})^2 + 1^2}$
 $= \sqrt{3 + 1}$
 $= \sqrt{4} = 2$ $\theta = 30^\circ$



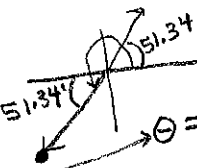
2. $\vec{v} = \langle -8, 8 \rangle$ $\theta = \tan^{-1}(\frac{8}{-8})$
 $\|\vec{v}\| = \sqrt{(-8)^2 + 8^2}$
 $= \sqrt{64 + 64}$
 $= \sqrt{128} = 8\sqrt{2}$ $\theta = 135^\circ$




3. $\vec{v} = \langle \sqrt{2}, -\sqrt{6} \rangle$ $\theta = \tan^{-1}(\frac{-\sqrt{6}}{\sqrt{2}})$
 $\|\vec{v}\| = \sqrt{(\sqrt{2})^2 + (-\sqrt{6})^2}$
 $= \sqrt{2 + 6}$
 $= \sqrt{8} = 2\sqrt{2}$ $\theta = 300^\circ$



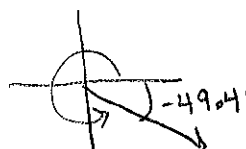
4. $\vec{v} = \langle -4, -5 \rangle$ $\theta = \tan^{-1}(\frac{-5}{-4})$
 $\|\vec{v}\| = \sqrt{(-4)^2 + (-5)^2}$
 $= \sqrt{16 + 25}$
 $= \sqrt{41}$ $\theta = 231.34^\circ$



5. $\vec{v} = \langle -2, 3 \rangle$ $\theta = \tan^{-1}(\frac{3}{-2})$
 $\|\vec{v}\| = \sqrt{(-2)^2 + 3^2}$
 $= \sqrt{4 + 9}$
 $= \sqrt{13}$ $\theta = 123.69^\circ$



6. $\vec{v} = \langle 6, -7 \rangle$ $\theta = \tan^{-1}(\frac{-7}{6})$
 $\|\vec{v}\| = \sqrt{6^2 + (-7)^2}$
 $= \sqrt{36 + 49}$
 $= \sqrt{85}$ $\theta = 310.6^\circ$



answers:

1) $\|\vec{v}\| = 2; \theta = 30^\circ$

2) $\|\vec{v}\| = 8\sqrt{2}; \theta = 135^\circ$

3) $\|\vec{v}\| = 2\sqrt{2}; \theta = 300^\circ$

4) $\|\vec{v}\| = \sqrt{41}; \theta = 231.34^\circ$

5) $\|\vec{v}\| = \sqrt{13}; \theta = 123.69^\circ$

6) $\|\vec{v}\| = \sqrt{85}; \theta = 310.60^\circ$