

Vectors

A) Write in component form:

- 1) magnitude = 23, Quadrant 1, 24° angle with x -axis.
- 2) magnitude = 105, Quadrant 2, 63° angle with x -axis.
- 3) magnitude = 3.7, Quadrant 3, 17° angle with x -axis.
- 4) magnitude = 67, Quadrant 4, 42° angle with x -axis.
- 5) mag = 10, on positive x -axis
- 6) mag = 12, on negative x -axis
- 7) mag = 6.5, on positive y -axis
- 8) mag = 2.11, on negative y -axis

B) Find magnitude and angle (measured from standard position)

- 1) $\langle 7, 10 \rangle$
- 2) $\langle -7, 1 \rangle$
- 3) $\langle -2, -8 \rangle$
- 4) $\langle 5, -6 \rangle$
- 5) $\langle -8, 0 \rangle$
- 6) $\langle 0, -3 \rangle$
- 7) $\langle 9, 0 \rangle$
- 8) $\langle 0, 16 \rangle$

C) Find two vectors (in opposite directions) perpendicular to each vector in part B.

D) Find a unit vector in the direction of each vector in part B. Write as a decimal to two places as needed.

- 1) $\langle 21.0, 9.4 \rangle$
- 2) $\langle -47.7, 93.6 \rangle$
- 3) $\langle -3.54, -1.08 \rangle$
- 4) $\langle 49.8, -44.8 \rangle$
- 5) $\langle 10, 0 \rangle$
- 6) $\langle -12, 0 \rangle$
- 7) $\langle 0, 6.5 \rangle$
- 8) $\langle 0, -2.11 \rangle$

- 1) $12.2, 55^\circ$
- 2) $7.1, 172^\circ$
- 3) $8.2, 256^\circ$
- 4) $7.8, 310^\circ$
- 5) $8, 180^\circ$
- 6) $3, 270^\circ$
- 7) $9, 0^\circ$
- 8) $16, 90^\circ$

- 1) $\langle 10, -7 \rangle$ and $\langle -10, 7 \rangle$
- 2) $\langle 1, 7 \rangle$ and $\langle -1, -7 \rangle$
- 3) $\langle 8, -2 \rangle$ and $\langle -8, 2 \rangle$ (or $\langle 4, -1 \rangle$ and $\langle 1, -4 \rangle$)
- 4) $\langle 6, 5 \rangle$ and $\langle -6, -5 \rangle$
- 5) $\langle 0, 1 \rangle$ and $\langle 0, -1 \rangle$
- 6) $\langle 1, 0 \rangle$ and $\langle -1, 0 \rangle$
- 7) $\langle 0, 1 \rangle$ and $\langle 0, -1 \rangle$
- 8) $\langle 1, 0 \rangle$ and $\langle -1, 0 \rangle$

- 1) $\langle 0.57, 0.82 \rangle$
- 2) $\langle -0.99, 0.14 \rangle$
- 3) $\langle -0.24, -0.97 \rangle$
- 4) $\langle 0.64, -0.77 \rangle$
- 5) $\langle -1, 0 \rangle$
- 6) $\langle 0, -1 \rangle$
- 7) $\langle 1, 0 \rangle$
- 8) $\langle 0, 1 \rangle$