7.6 Trigonometry short version

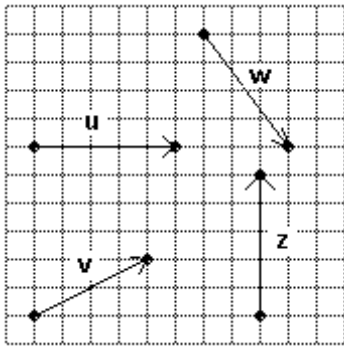Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

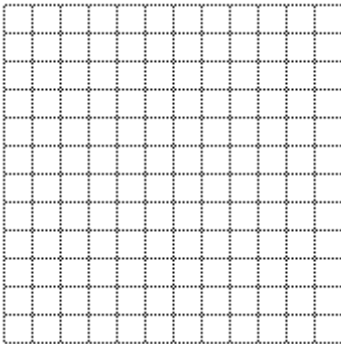**Solve the problem.**

1) Let vector **u** have initial point $P_1 = (0, 2)$ and terminal point $P_2 = (-2, 5)$. Let vector **v** have initial point $Q_1 = (3, 0)$ and terminal point $Q_2 = (1, 3)$. **u** and **v** have the same direction. Find $\|\mathbf{u}\|$ and $\|\mathbf{v}\|$. Is $\mathbf{u} = \mathbf{v}$?
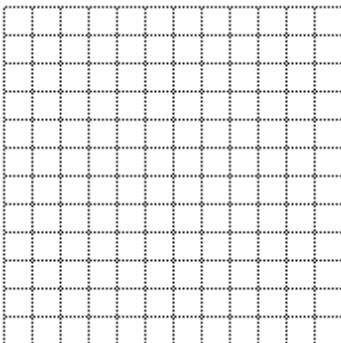
1) _____

Use the vectors v, u, w, and z to draw the indicated vector.
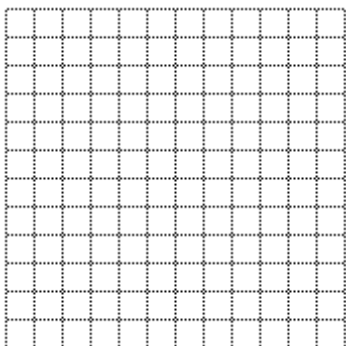

2) 3**w**

2) _____

3) $-\dfrac{1}{2}\mathbf{u}$

3) _____

4) **z – v**
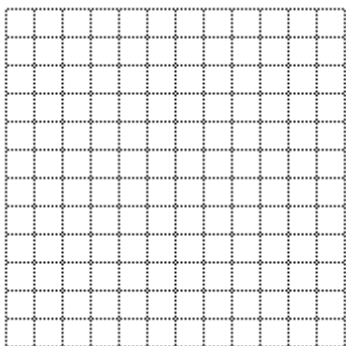
4) _____

5) **u + z**

5) _____

Let v be the vector from initial point P$_1$ to terminal point P$_2$. Write v in terms of i and j.

6) $P_1 = (6, -5)$; $P_2 = (3, -1)$

6) _____

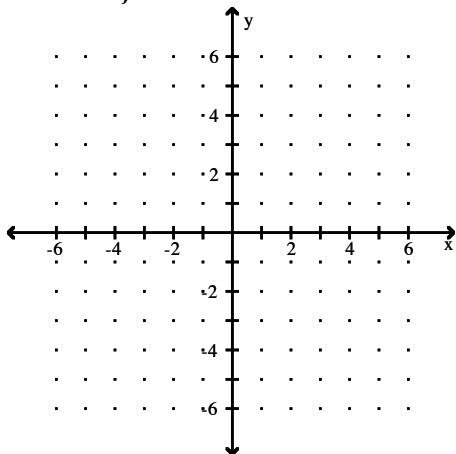7) $P_1 = (6, 3)$; $P_2 = (-2, -4)$

7) _____

Sketch the vector as a position vector and find its magnitude.

8) $\mathbf{v} = -4\mathbf{i} + 3\mathbf{j}$

8) _____

Find the specified vector or scalar.

9) $\mathbf{u} = 6\mathbf{i} - 5\mathbf{j}$, $\mathbf{v} = -9\mathbf{i} + 7\mathbf{j}$; Find $\mathbf{u} + \mathbf{v}$.

9) _____

10) $\mathbf{u} = -9\mathbf{i} - 2\mathbf{j}$, $\mathbf{v} = 5\mathbf{i} + 7\mathbf{j}$; Find $\mathbf{u} - \mathbf{v}$.

10) _____

11) $\mathbf{v} = 8\mathbf{i} + 2\mathbf{j}$; Find $3\mathbf{v}$.

11) _____

12) $\mathbf{v} = -7\mathbf{i} + 2\mathbf{j}$; Find $\|9\mathbf{v}\|$.

12) _____

13) $\mathbf{u} = -7\mathbf{i} + 1\mathbf{j}$ and $\mathbf{v} = 8\mathbf{i} + 1\mathbf{j}$; Find $\|\mathbf{u} + \mathbf{v}\|$.

13) _____

14) $\mathbf{u} = 2\mathbf{i} + 7\mathbf{j}$ and $\mathbf{v} = 12\mathbf{i} + 42\mathbf{j}$; Find $\|\mathbf{v} - \mathbf{u}\|$.

14) _____

Find the unit vector that has the same direction as the vector v.

15) $\mathbf{v} = 2\mathbf{i}$

15) _____

16) $\mathbf{v} = -9\mathbf{j}$

16) _____

17) $\mathbf{v} = 3\mathbf{i} - 4\mathbf{j}$

17) _____

Write the vector v in terms of i and j whose magnitude $\|\mathbf{v}\|$ and direction angle θ are given.

18) $\|\mathbf{v}\| = 10$, $\theta = 120°$

18) _____

19) $\|\mathbf{v}\| = 7$, $\theta = 225°$

19) _____

20) $\|\mathbf{v}\| = 8$, $\theta = 30°$

20) _____

Perform the indicated operation.

21) $\mathbf{u} = 8\mathbf{i} + \mathbf{j}$, $\mathbf{v} = -2\mathbf{i} - 6\mathbf{j}$, $\mathbf{w} = \mathbf{i} - 9\mathbf{j}$; Find $\mathbf{v} - (\mathbf{u} - \mathbf{w})$.

21) _____

Find the magnitude $\|\mathbf{v}\|$ and direction angle θ, to the nearest tenth of a degree, for the given vector v.
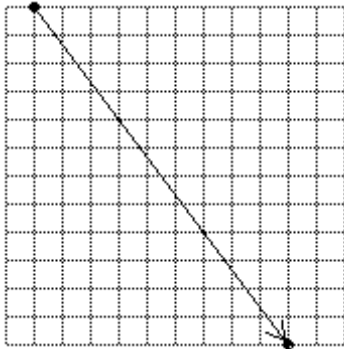
22) $\mathbf{v} = -4\mathbf{i} - 3\mathbf{j}$

22) _____

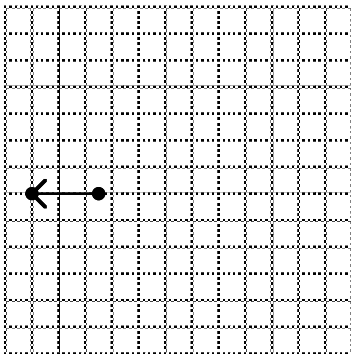1) $\|\mathbf{u}\| = \sqrt{13}$, $\|\mathbf{v}\| = \sqrt{13}$; yes
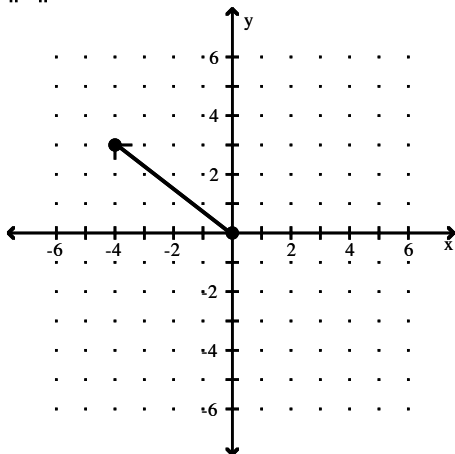
2)

3)

4)
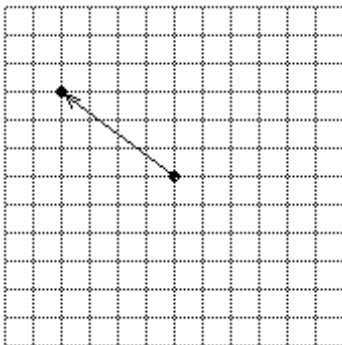
5)
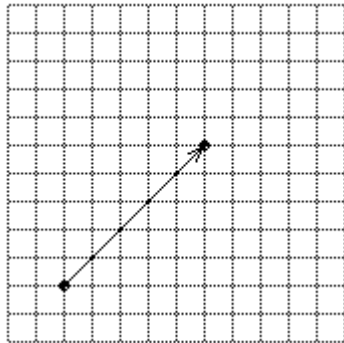
6) $\mathbf{v} = -3\mathbf{i} + 4\mathbf{j}$

7) $\mathbf{v} = -8\mathbf{i} - 7\mathbf{j}$

8) $\|\mathbf{v}\| = 5$

9) $-3\mathbf{i} + 2\mathbf{j}$

10) $-14\mathbf{i} - 9\mathbf{j}$

11) $24\mathbf{i} + 6\mathbf{j}$

12) $9\sqrt{53}$

13) $\sqrt{5}$

14) $5\sqrt{53}$

15) $\mathbf{u} = \mathbf{i}$

16) $\mathbf{u} = -\mathbf{j}$

17) $\mathbf{u} = \dfrac{3}{5}\mathbf{i} - \dfrac{4}{5}\mathbf{j}$

18) $\mathbf{v} = -5\mathbf{i} + 5\sqrt{3}\mathbf{j}$

19) $\mathbf{v} = -\dfrac{7\sqrt{2}}{2}\mathbf{i} - \dfrac{7\sqrt{2}}{2}\mathbf{j}$

20) $\mathbf{v} = 4\sqrt{3}\mathbf{i} + 4\mathbf{j}$

21) $-9\mathbf{i} - 16\mathbf{j}$

22) 5; 216.9°