

Vectors Practice 1

Write each vector in component form.

1) \overrightarrow{PQ} where $P = (6, 2)$ $Q = (10, -7)$

2) \overrightarrow{CD} where $C = (4, 10)$ $D = (5, -6)$

3) $|\mathbf{r}| = 44, 328^\circ$

4) $|\mathbf{a}| = 97, 332^\circ$

Write each vector as a linear combination.

5) \overrightarrow{AB} where $A = (3, -7)$ $B = (-8, 6)$

6) \overrightarrow{AB} where $A = (5, 5)$ $B = (-4, 9)$

7) $|\mathbf{n}| = 96, 342^\circ$

8) $|\mathbf{m}| = 100, 133^\circ$

Find the magnitude for each vector.

9) $\mathbf{v} = \langle 1, -6 \rangle$

10) \overrightarrow{RS} where $R = (9, 10)$ $S = (5, -5)$

11) $-15\mathbf{i} - 36\mathbf{j}$

Find the component form of the resultant vector.

12) $\mathbf{a} = \langle -11, -7 \rangle$

$\mathbf{b} = \langle -3, 10 \rangle$

Find: $\mathbf{a} - 5\mathbf{b}$

13) $\mathbf{f} = \langle 0, -1 \rangle$

$\mathbf{b} = \langle -11, 11 \rangle$

Find: $\mathbf{f} - \mathbf{b}$

14) $\mathbf{u} = \langle -3, -2 \rangle$

Find: $4\mathbf{u}$

15) $\mathbf{f} = \langle -4, -3 \rangle$

$\mathbf{b} = \langle -4, -5 \rangle$

Find: $-\mathbf{f} - \mathbf{b}$

16) $\mathbf{u} = \langle 9, -7 \rangle$
 $\mathbf{v} = \langle 0, 1 \rangle$
Find: $-\mathbf{u} + \mathbf{v}$

17) Given: $T = (-10, -4)$ $X = (-8, -3)$
 $Y = (-4, -7)$ $Z = (-10, 7)$
Find: $\overrightarrow{TX} + \overrightarrow{YZ}$

18) Given: $A = (9, -3)$ $B = (-9, 1)$
 $C = (8, -4)$ $D = (4, 9)$
Find: $-\overrightarrow{AB} - \overrightarrow{CD}$

19) $\mathbf{u} = \langle 9, -7 \rangle$
 $\mathbf{g} = \langle -12, 12 \rangle$
Find: $-\mathbf{u} - \mathbf{g}$

20) $\mathbf{a} = \langle 12, 6 \rangle$
 $\mathbf{v} = \langle 1, -8 \rangle$
Find: $\mathbf{a} + \mathbf{v}$

21) $\mathbf{u} = \langle -5, \sqrt{1271} \rangle$
Unit vector in the direction of \mathbf{u}

22) $\mathbf{u} = \langle -8, -4 \rangle$
Unit vector in the direction of \mathbf{u}

23) $\mathbf{f} = \langle -30, -40 \rangle$
Unit vector in the direction of \mathbf{f}

24) $\mathbf{f} = \langle 6, 1 \rangle$
Unit vector in the direction of \mathbf{f}

25) $\mathbf{f} = \langle -5, 8 \rangle$
Unit vector in the direction of \mathbf{f}

Vectors Practice 1

Write each vector in component form.

1) \overrightarrow{PQ} where $P = (6, 2)$ $Q = (10, -7)$

$\langle 4, -9 \rangle$

2) \overrightarrow{CD} where $C = (4, 10)$ $D = (5, -6)$

$\langle 1, -16 \rangle$

3) $|\mathbf{r}| = 44, 328^\circ$

$\langle 37.31, -23.32 \rangle$

4) $|\mathbf{a}| = 97, 332^\circ$

$\langle 85.65, -45.54 \rangle$

Write each vector as a linear combination.

5) \overrightarrow{AB} where $A = (3, -7)$ $B = (-8, 6)$

$-11\mathbf{i} + 13\mathbf{j}$

6) \overrightarrow{AB} where $A = (5, 5)$ $B = (-4, 9)$

$-9\mathbf{i} + 4\mathbf{j}$

7) $|\mathbf{n}| = 96, 342^\circ$

$91.301\mathbf{i} - 29.666\mathbf{j}$

8) $|\mathbf{m}| = 100, 133^\circ$

$-68.2\mathbf{i} + 73.135\mathbf{j}$

Find the magnitude for each vector.

9) $\mathbf{v} = \langle 1, -6 \rangle$

$\sqrt{37} \approx 6.083$

10) \overrightarrow{RS} where $R = (9, 10)$ $S = (5, -5)$

$\sqrt{241} \approx 15.524$

11) $-15\mathbf{i} - 36\mathbf{j}$

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Find the component form of the resultant vector.

12) $\mathbf{a} = \langle -11, -7 \rangle$

$\mathbf{b} = \langle -3, 10 \rangle$

Find: $\mathbf{a} - 5\mathbf{b}$

$\langle 4, -57 \rangle$

13) $\mathbf{f} = \langle 0, -1 \rangle$

$\mathbf{b} = \langle -11, 11 \rangle$

Find: $\mathbf{f} - \mathbf{b}$

$\langle 11, -12 \rangle$

14) $\mathbf{u} = \langle -3, -2 \rangle$

Find: $4\mathbf{u}$

$\langle -12, -8 \rangle$

15) $\mathbf{f} = \langle -4, -3 \rangle$

$\mathbf{b} = \langle -4, -5 \rangle$

Find: $-\mathbf{f} - \mathbf{b}$

$\langle 8, 8 \rangle$

16) $\mathbf{u} = \langle 9, -7 \rangle$
 $\mathbf{v} = \langle 0, 1 \rangle$
 Find: $-\mathbf{u} + \mathbf{v}$
 $\langle -9, 8 \rangle$

17) Given: $T = (-10, -4)$ $X = (-8, -3)$
 $Y = (-4, -7)$ $Z = (-10, 7)$
 Find: $\overrightarrow{TX} + \overrightarrow{YZ}$
 $\langle -4, 15 \rangle$

18) Given: $A = (9, -3)$ $B = (-9, 1)$
 $C = (8, -4)$ $D = (4, 9)$
 Find: $-\overrightarrow{AB} - \overrightarrow{CD}$
 $\langle 22, -17 \rangle$

19) $\mathbf{u} = \langle 9, -7 \rangle$
 $\mathbf{g} = \langle -12, 12 \rangle$
 Find: $-\mathbf{u} - \mathbf{g}$
 $\langle 3, -5 \rangle$

20) $\mathbf{a} = \langle 12, 6 \rangle$
 $\mathbf{v} = \langle 1, -8 \rangle$
 Find: $\mathbf{a} + \mathbf{v}$
 $\langle 13, -2 \rangle$

21) $\mathbf{u} = \langle -5, \sqrt{1271} \rangle$
 Unit vector in the direction of \mathbf{u}
 $\left\langle -\frac{5}{36}, \frac{\sqrt{1271}}{36} \right\rangle$

22) $\mathbf{u} = \langle -8, -4 \rangle$
 Unit vector in the direction of \mathbf{u}
 $\left\langle -\frac{2\sqrt{5}}{5}, -\frac{\sqrt{5}}{5} \right\rangle$

23) $\mathbf{f} = \langle -30, -40 \rangle$
 Unit vector in the direction of \mathbf{f}
 $\left\langle -\frac{3}{5}, -\frac{4}{5} \right\rangle$

24) $\mathbf{f} = \langle 6, 1 \rangle$
 Unit vector in the direction of \mathbf{f}
 $\left\langle \frac{6\sqrt{37}}{37}, \frac{\sqrt{37}}{37} \right\rangle$

25) $\mathbf{f} = \langle -5, 8 \rangle$
 Unit vector in the direction of \mathbf{f}
 $\left\langle -\frac{5\sqrt{89}}{89}, \frac{8\sqrt{89}}{89} \right\rangle$