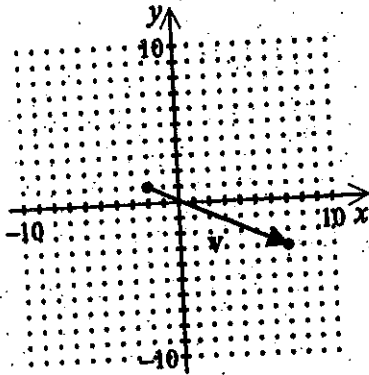


Section 6.3: Vectors in the Plane

Objective 1: Represent vectors as directed line segments

29. Identify the initial and terminal points of a vector that has the same direction as v .



(A) $(-3, -3)$ to $(-12, -7)$

(C) $(-3, -3)$ to $(1, -12)$

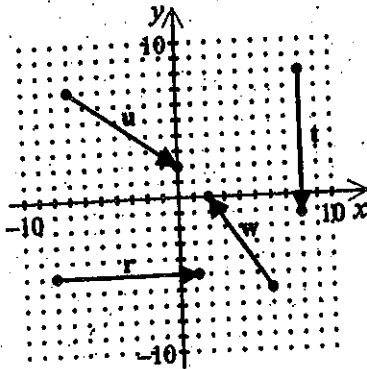
(B) $(1, 1)$ to $(-3, 10)$

(D) $(1, 1)$ to $(10, -3)$

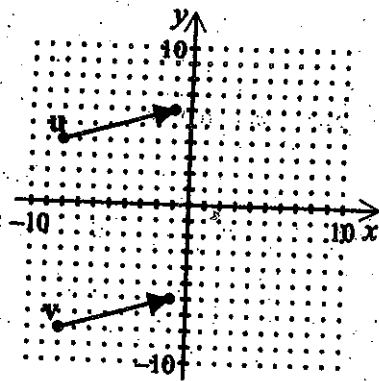
30. Identify the vector with the same magnitude as v .

$v = \overrightarrow{AB}$ with $A = (5, 1)$ and $B = (9, 7)$.

(A) t (B) r (C) w (D) u



31. Show that $u = v$.



32. Find the value of k that makes $u = v$.
 $u = \overrightarrow{AB}$ with $A = (-7, 4)$, $B = (0, 6)$
 $v = \overrightarrow{MN}$ with $M = (-3, -8)$, $N = (k, -6)$

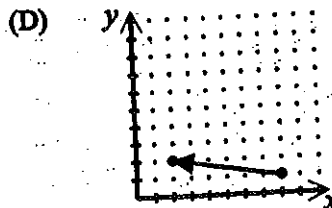
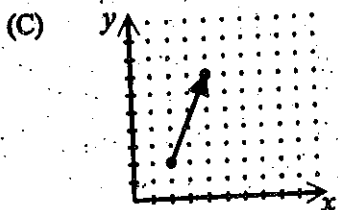
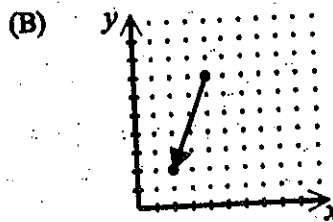
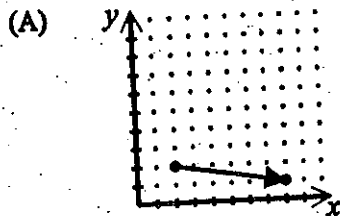
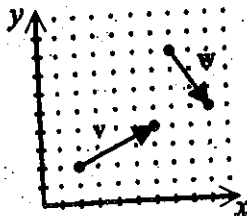
Objective 2: Write the component forms of vectors

33. Identify the pair of points that could be the initial and terminal points of the vector.
 $u = \langle -7, 6 \rangle$
- (A) $(-1, -9)$ and $(5, -2)$ (B) $(5, -2)$ and $(12, 4)$
 (C) $(4, -4)$ and $(-3, 2)$ (D) $(10, -11)$ and $(4, -4)$
34. Identify the initial point of vector v .
 $v = \langle -8, -6 \rangle$; terminal point is $(-11, -12)$
- (A) $(-19, -18)$ (B) $(-6, -3)$ (C) $(-3, -6)$ (D) $(5, 0)$
35. Give the component form of the vector $v = \overrightarrow{EF}$ and sketch the vector in standard position.
 $E = (0, 1)$ and $F = (8, -5)$
36. Find all possible values of the missing component of the vector u .
 $u = \langle 7, y \rangle$, $\|u\| = \sqrt{149}$

Objective 3: Perform basic vector operations and represent them graphically

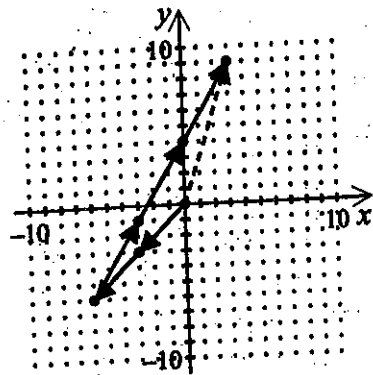
37. Use the figure to identify the graph of the result of the specified vector operation.

$v - w$



38. Identify the expression that is represented by the dashed segment in the graph.

$u = \langle -3, -3 \rangle, v = \langle -3, -5 \rangle$



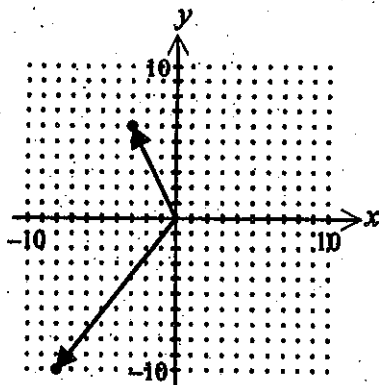
(A) $2v - 3u$

(B) $2u - 3v$

(C) $2v + 3u$

(D) $2u + 3v$

39. Find the sum of the pair of vectors. Express the answer in component form.



40. Give the component form of the vector u that has the magnitude described.

$$v = \langle -3, 1 \rangle, \text{ magnitude of } u = \frac{1}{6} \|v\|$$

Objective 4: Write vectors as linear combinations of unit vectors

41. Let $u = -2i - 5j$ and $v = 2i - 3j$. Find $3u + 2v$.

(A) $-6i - 6j$ (B) $-10i - 9j$ (C) $-2i - 21j$ (D) $3i - 6j$

42. Find the number by which the components of the vector can be divided to find the unit vector in the same direction.

$$u = -2i - 10j$$

(A) $2\sqrt{6}$ (B) 104 (C) 52 (D) $2\sqrt{26}$

43. Find the unit vector in the same direction as u .

$$u = 10i + 11j$$

44. Express the vector as a combination of the standard unit vectors i and j .

$$v = \overrightarrow{AB} \text{ where } A = (-11, 2) \text{ and } B = (3, -9)$$