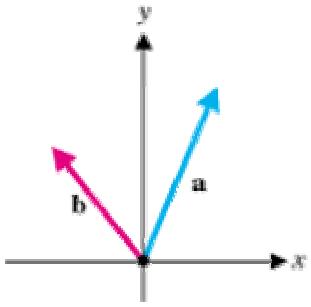
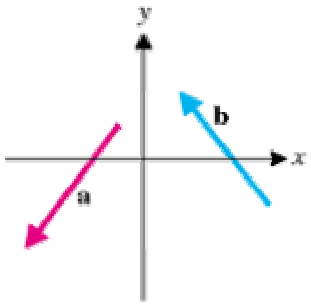
p. 795 (10.1)

Sketch the vectors $2\vec{a},\ -3\vec{b},\ \vec{a}+\vec{b},$ **and** $2\vec{a}-3\vec{b}.$

5.



7.



Compute $\vec{a}+\vec{b},\ \vec{a}-2\vec{b},\ 3\vec{a}$ **and** $\left\|5\vec{b}-2\vec{a}\right\|.$

9. $\vec{a}=\langle 2,4\rangle,\ \vec{b}=\langle 3,-1\rangle$

11. $\vec{a}=\vec{i}+2\vec{j},\ \vec{b}=3\vec{i}-\vec{j}$

Determine whether the vectors $\vec{a}$ **and** $\vec{b}$ **are parallel.**

19. $\vec{a}=\langle 2,1\rangle,\ \vec{b}=\langle -4,-2\rangle$

21. $\vec{a}=\langle -2,3\rangle,\ \vec{b}=\langle 4,6\rangle$

Find the vector with initial point *A* and terminal point *B*.

27. $A=(2,3),\ B=(5,2)$

29. $A=(4,3),\ B=(1,0)$

(a) Find a unit vector in the same direction as the given vector and (b) write the given vector in polar form.

35. $\langle 4,-3\rangle$

37. $2\vec{i}-4\vec{j}$

41. from (2, 1) to (5, 2)

43. from (5, -1) to (2, 3)

Find a vector with the given magnitude in the same direction as the given vector.

45. magnitude 3, $\vec{v} = 3\vec{i} + 4\vec{j}$

47. magnitude 29, $\vec{v} = \langle 2, 5 \rangle$

51. Suppose that there are two forces acting on a skydiver: gravity at 150 pounds down and air resistance at 140 pounds up and 20 pounds to the right. What is the net force acting on the skydiver?

53. Suppose that there are two forces acting on a skydiver: gravity at 200 pounds down and air resistance. If the net force is 10 pounds down and 30 pounds to the right, what is the force of air resistance acting on the skydiver?

57. The thrust of an airplane's engines produces a speed of 300 mph in still air. The wind velocity is given by $\langle 30, -20 \rangle$. In what direction should the airplane head to fly due west?

59. The thrust of an airplane's engines produces a speed of 400 mph in still air. The wind velocity is given by $\langle -20, 30 \rangle$. In what direction should the airplane head to fly due north?