

Chapter 6

Warm-ups

Draw the resultant vector represented by the vector operation.

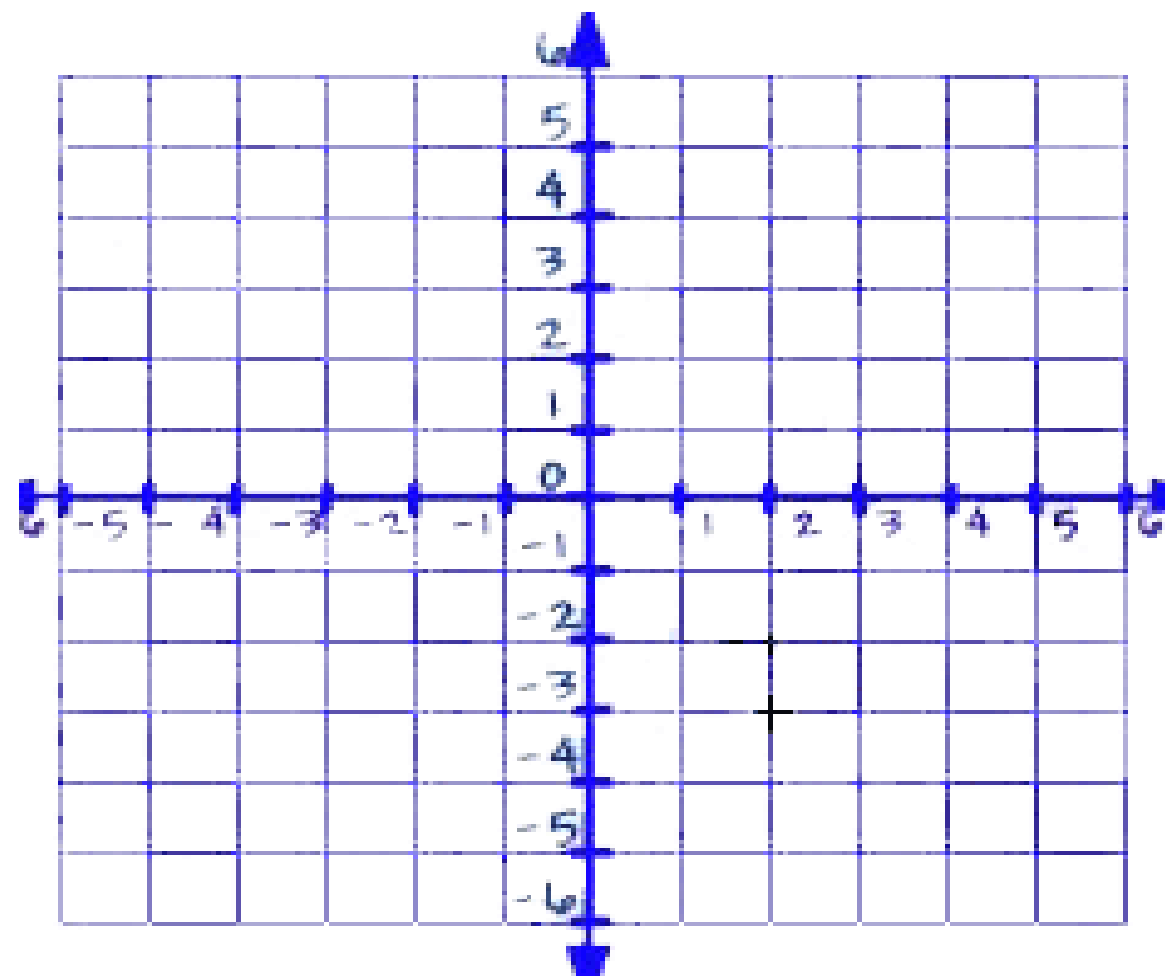
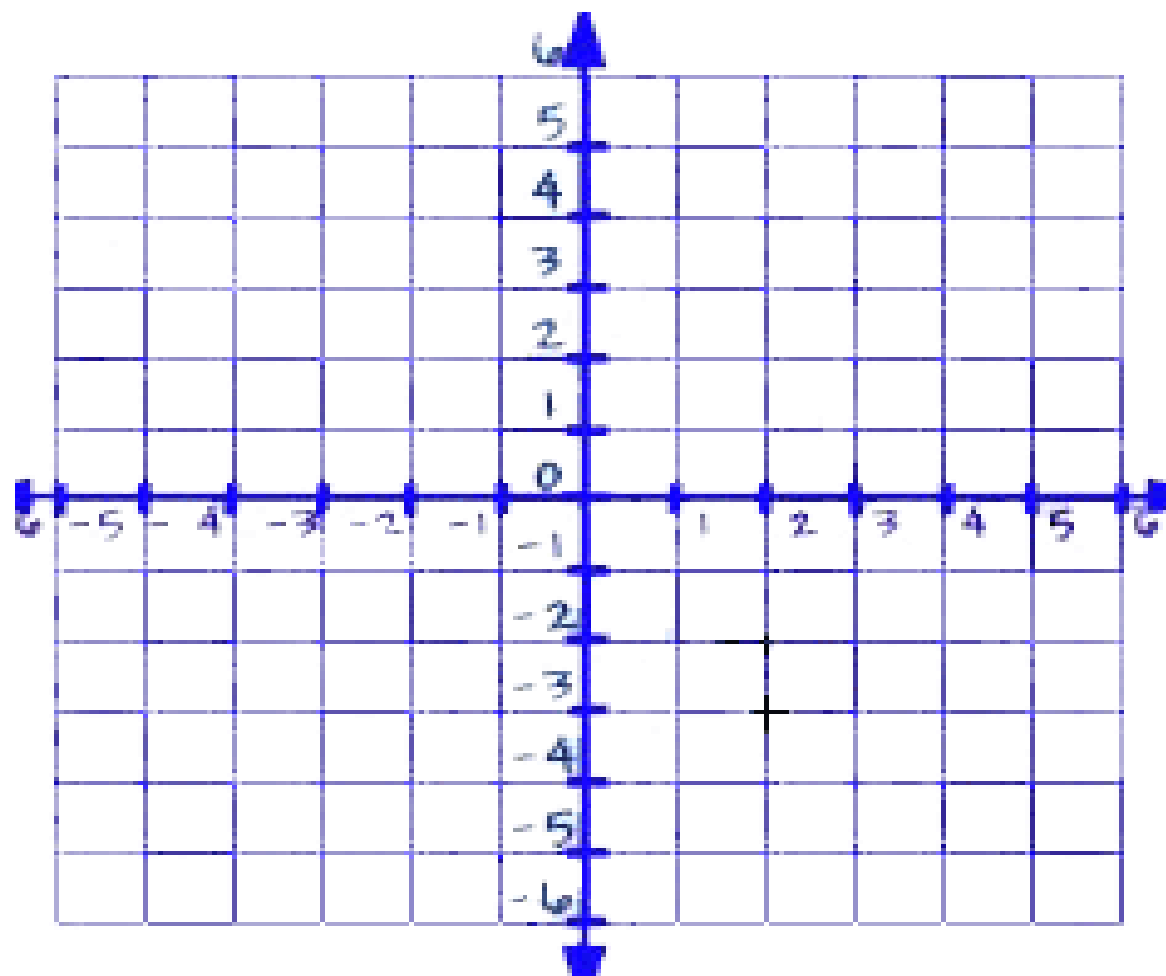
$$u = \langle 2, -4 \rangle \quad v = \langle -3, -5 \rangle$$

3. $u + v$

4. $v - u$

5. $2u - v$

6. $u + 2v$



Find the Component Form and Magnitude for each vector

$$P(-1,3) \quad Q(2,5) \quad R(-3,1)$$

1. \vec{PR}

2. \vec{QP}

Find a unit vector in the direction of the given vector u .

$$5. \quad u = \langle 2, -4 \rangle$$

Find a unit vector in the direction of the given vector v .

$$6. \quad v = \langle -3, -5 \rangle$$

Find the component for of the vector with the given magnitude and angle

7. $|\mathbf{v}| = 10 \quad \theta = 82^\circ$

8. $|\mathbf{v}| = 12 \quad \theta = 152^\circ$

Find the magnitude and direction angle of the vector

9. $\langle -3, 5 \rangle$

10. $\langle -6, -5 \rangle$

An airplane is flying on compass heading(bearing) of 210 degrees at 475 mph.

a) Find the component form of the velocity of the airplane.

The wind is blowing with the bearing of 312 degrees at 18 mph.

b) Find the component form of the velocity of the wind

c) Find the component form of the resultant vector of the plane and the wind.

d) Find the actual ground speed of the airplane.

e) Find the actual direction(bearing) the airplane is flying.

Salmon Migration

- During one part of its migration, a salmon is swimming at 6 mph and the current is flowing downstream at 3 mph at an angle of 7 degrees.
- How fast is the salmon swimming upstream.