

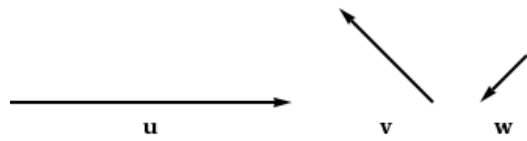
Due: Tue Apr 7 2015 11:00 PM PDT

Question 1 2 3 4 5 6 7 8 9 10 11 12 13

1. Question Details

SCalcET7 12.2.005. [1854653]

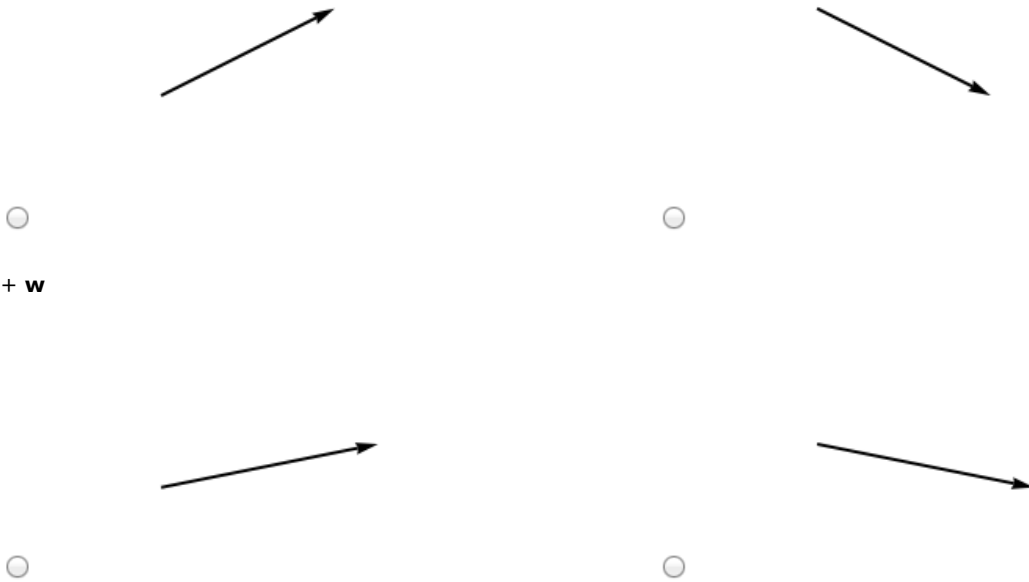
Copy the vectors in the figure and use them to draw the following vectors.

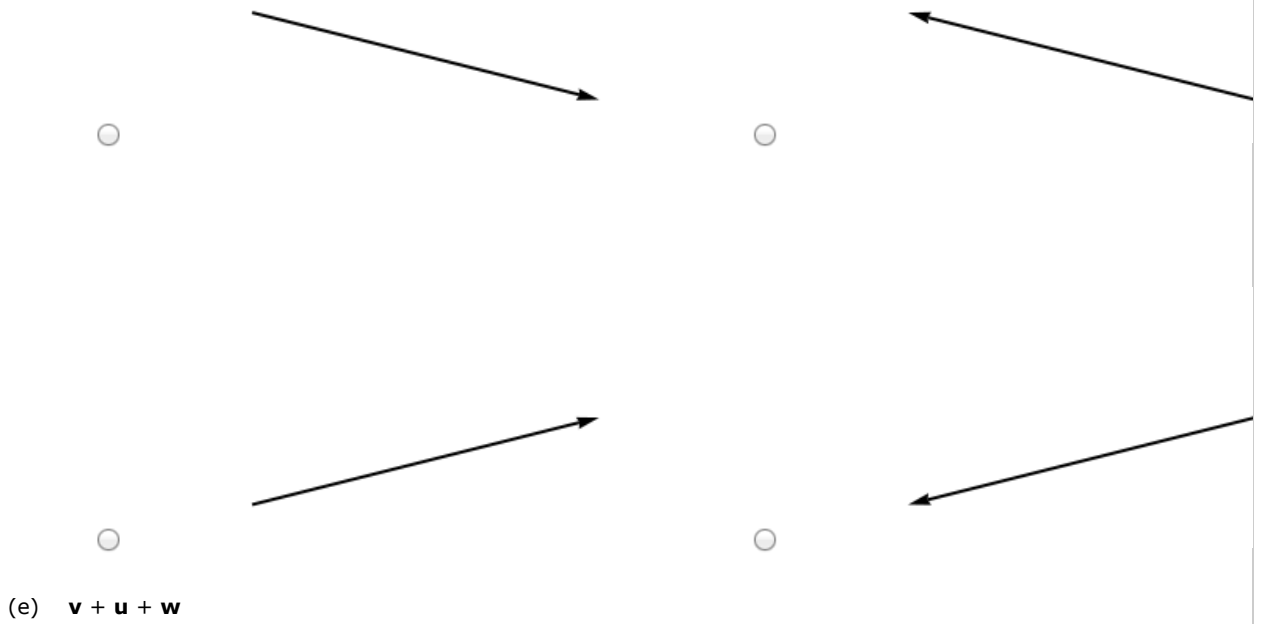
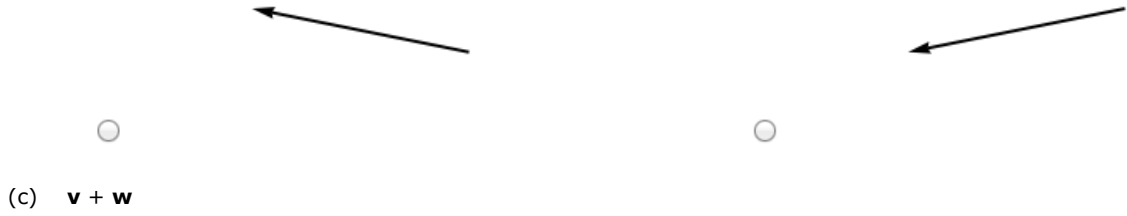


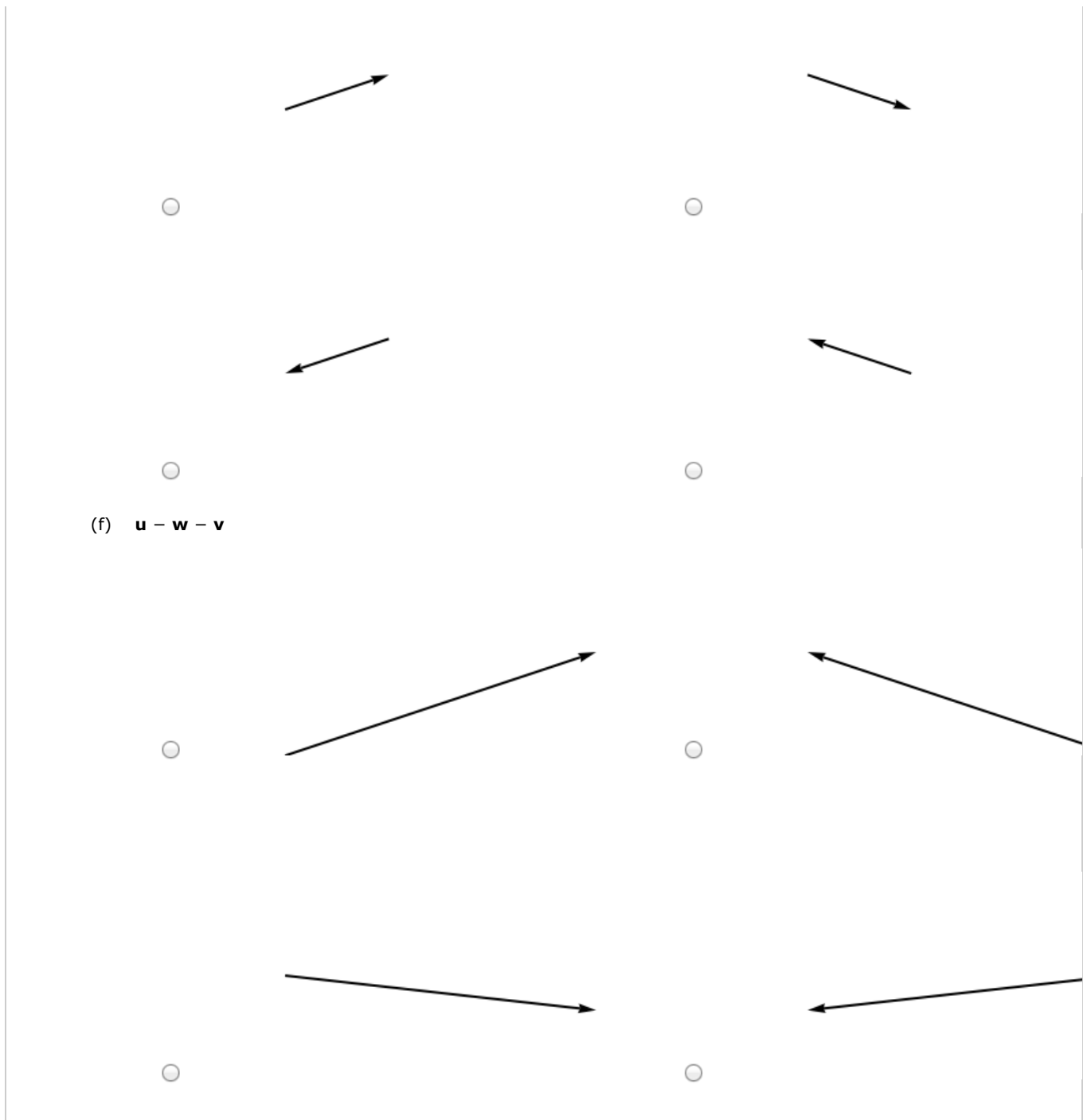
(a)  $\mathbf{u} + \mathbf{v}$



(b)  $\mathbf{u} + \mathbf{w}$







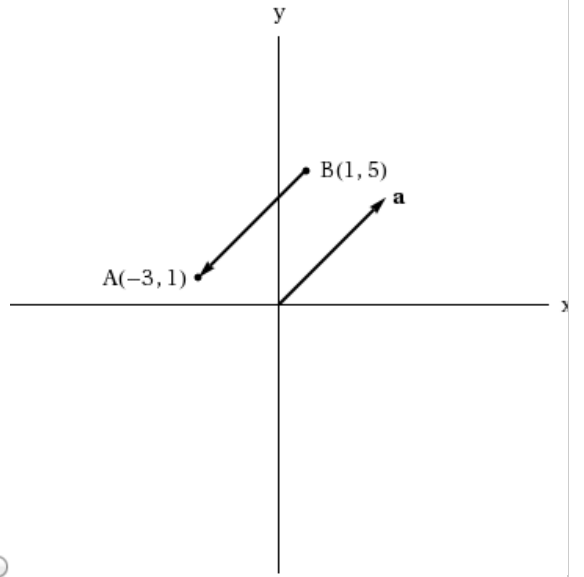
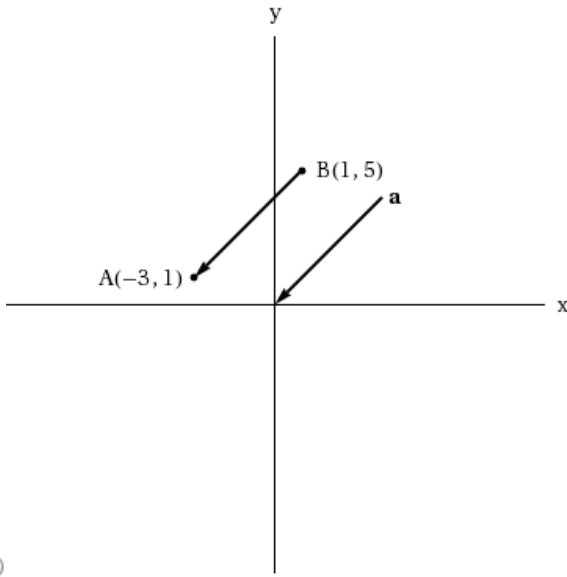
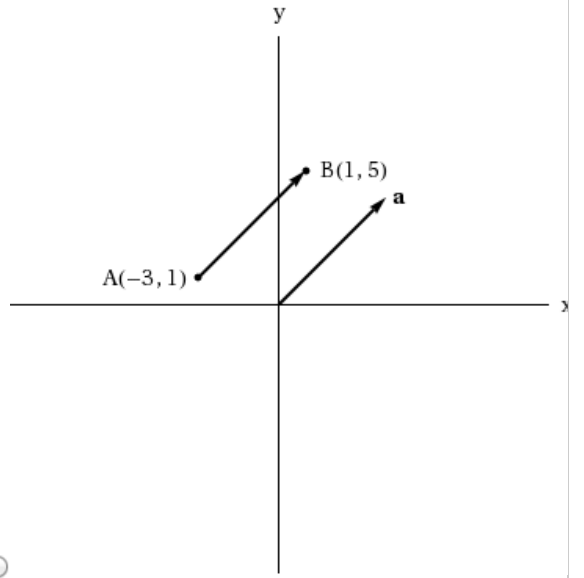
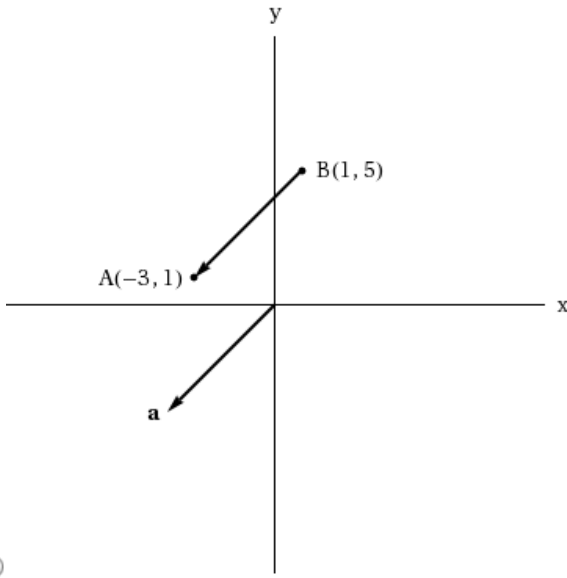
## 2. Question Details

SCalcET7 12.2.009. [2422478]

Find a vector  $\mathbf{a}$  with representation given by the directed line segment  $\overrightarrow{AB}$ .

$$A(-3, 1), \quad B(1, 5)$$

Draw  $\overrightarrow{AB}$  and the equivalent representation starting at the origin.



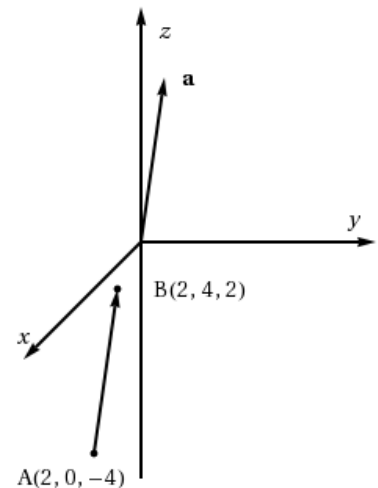
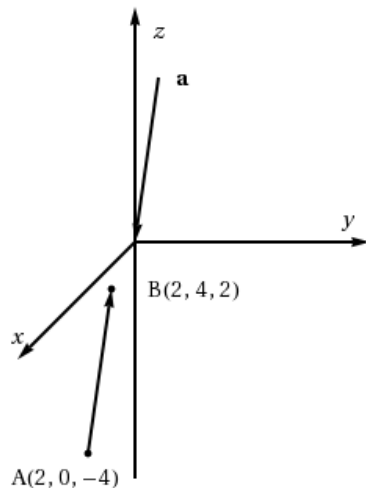
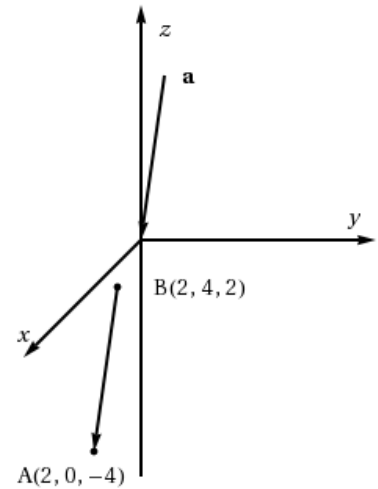
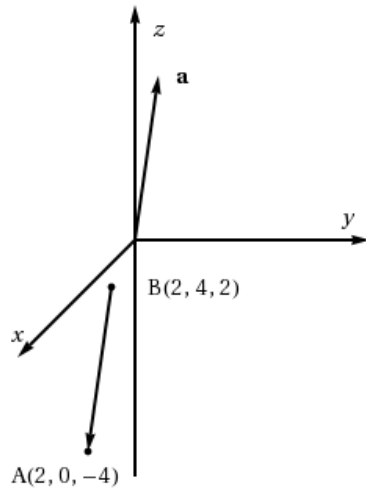
## 3. Question Details

SCalcET7 12.2.014. [1761634]

Find a vector  $\mathbf{a}$  with representation given by the directed line segment  $\overrightarrow{AB}$ .

$$A(2, 0, -4), \quad B(2, 4, 2)$$

Draw  $\overrightarrow{AB}$  and the equivalent representation starting at the origin.



## 4. Question Details

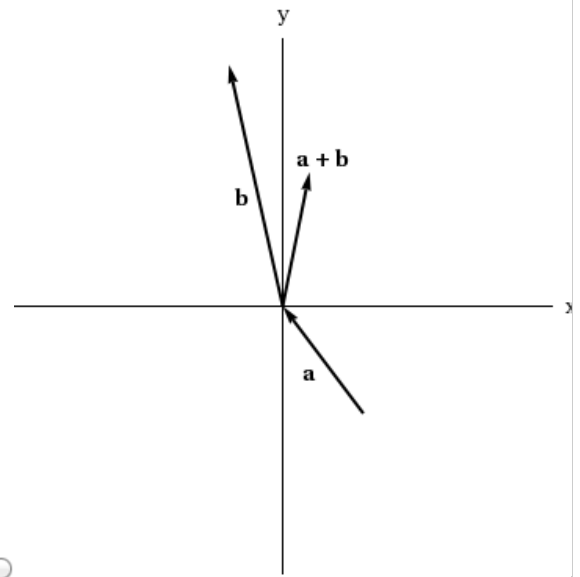
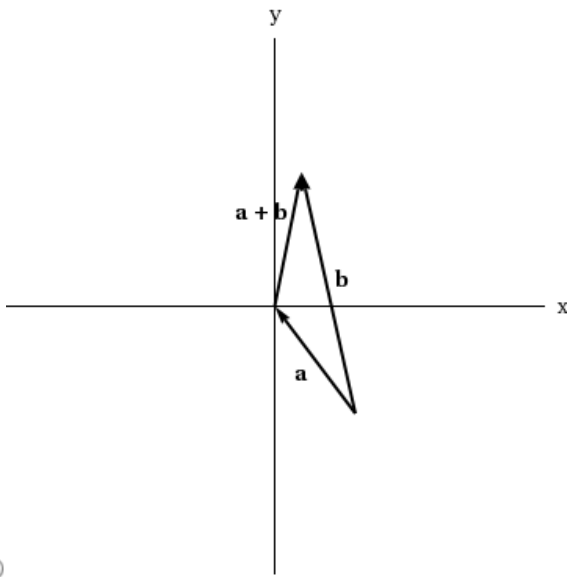
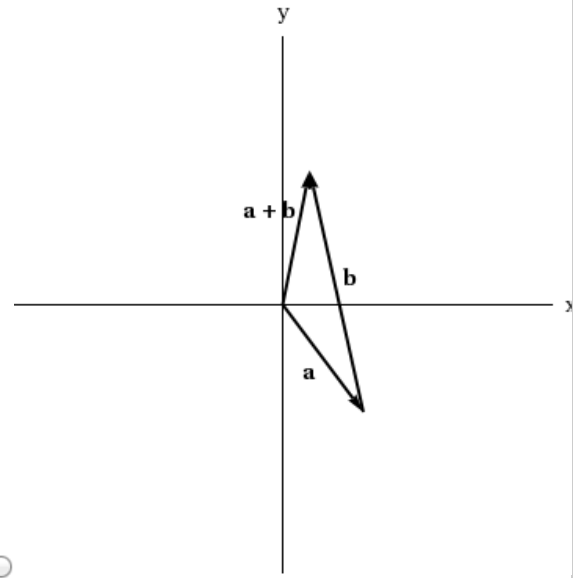
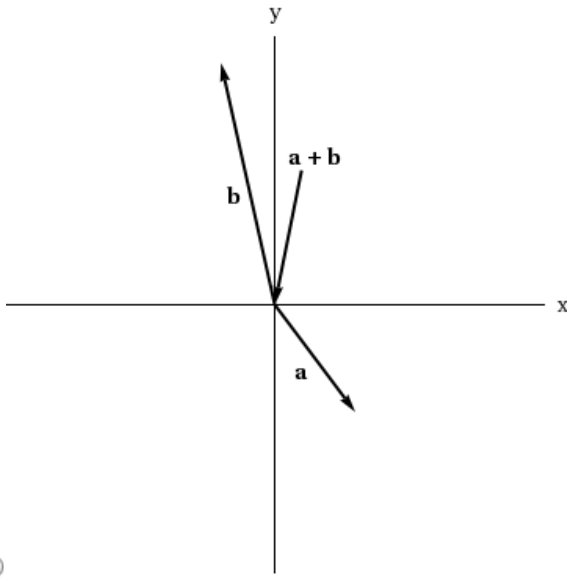
SCalcET7 12.2.016. [1815549]

Find the sum of the given vectors.

$$\mathbf{a} = \langle 3, -4 \rangle, \quad \mathbf{b} = \langle -2, 9 \rangle$$

$$\mathbf{a} + \mathbf{b} =$$

Illustrate geometrically.



## 5. Question Details

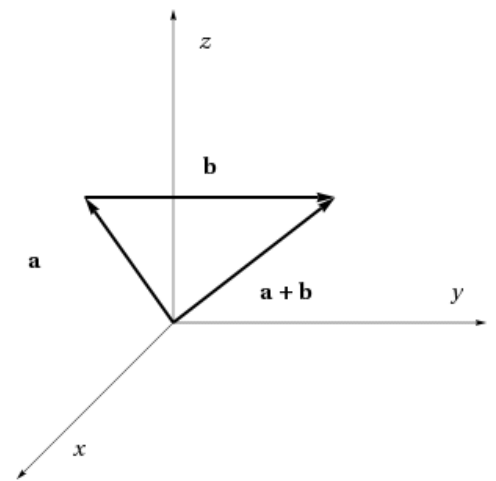
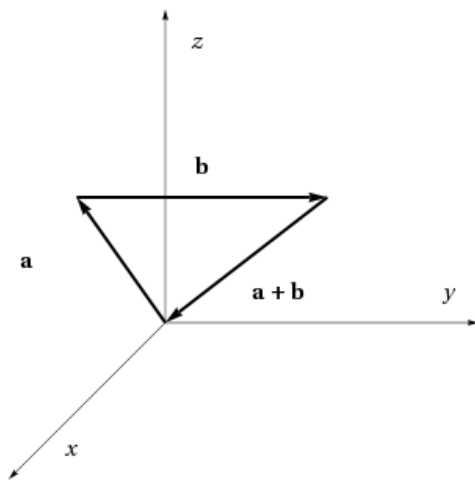
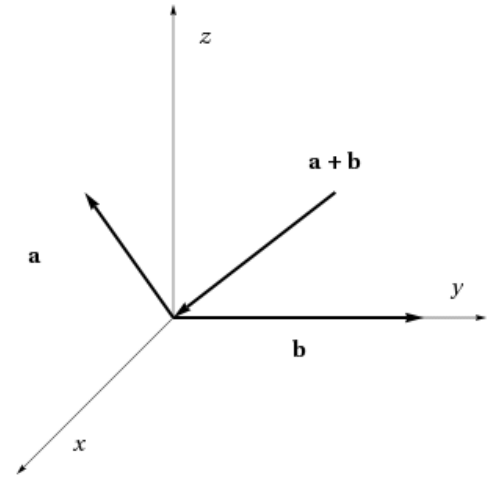
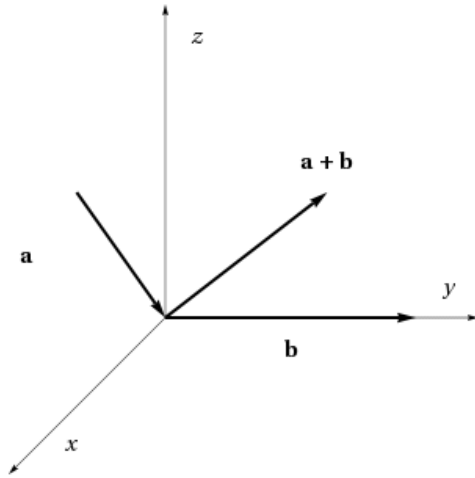
SCalcET7 12.2.017. [1815546]

Find the sum of the given vectors.

$$\mathbf{a} = \langle 4, 0, 4 \rangle, \quad \mathbf{b} = \langle 0, 8, 0 \rangle$$

$$\mathbf{a} + \mathbf{b} =$$

Illustrate geometrically.



## 6. Question Details

SCalcET7 12.2.019. [1654874]

Find  $\mathbf{a} + \mathbf{b}$ ,  $2\mathbf{a} + 3\mathbf{b}$ ,  $|\mathbf{a}|$ , and  $|\mathbf{a} - \mathbf{b}|$ .

$$\mathbf{a} = \langle 5, -12 \rangle, \quad \mathbf{b} = \langle -3, -6 \rangle$$

$$\mathbf{a} + \mathbf{b} =$$

$$2\mathbf{a} + 3\mathbf{b} =$$

$$|\mathbf{a}| =$$

$$|\mathbf{a} - \mathbf{b}| =$$

## 7. Question Details

SCalcET7 12.2.021. [1761641]

Find  $\mathbf{a} + \mathbf{b}$ ,  $2\mathbf{a} + 3\mathbf{b}$ ,  $|\mathbf{a}|$ , and  $|\mathbf{a} - \mathbf{b}|$ .

$$\mathbf{a} = \mathbf{i} + 2\mathbf{j} - 4\mathbf{k}, \quad \mathbf{b} = -5\mathbf{i} - \mathbf{j} + 6\mathbf{k}$$

$$\mathbf{a} + \mathbf{b} =$$

$$2\mathbf{a} + 3\mathbf{b} =$$

$$|\mathbf{a}| =$$

$$|\mathbf{a} - \mathbf{b}| =$$

## 8. Question Details

SCalcET7 12.2.023.MI. [1836115]

Find a unit vector that has the same direction as the given vector.

$$-3\mathbf{i} + 7\mathbf{j}$$

## 9. Question Details

SCalcET7 12.2.025. [1655563]

Find a unit vector that has the same direction as the given vector.

$$8\mathbf{i} - \mathbf{j} + 4\mathbf{k}$$

## 10. Question Details

SCalcET7 12.2.026. [1654840]

Find a vector that has the same direction as  $\langle -4, 4, 6 \rangle$  but has length 6.



11. Question Details

SCalcET7 12.2.029. [1654060]

If  $\mathbf{v}$  lies in the first quadrant and makes an angle  $\pi/3$  with the positive  $x$ -axis and  $|\mathbf{v}| = 6$ , find  $\mathbf{v}$  in component form.

$\mathbf{v} =$

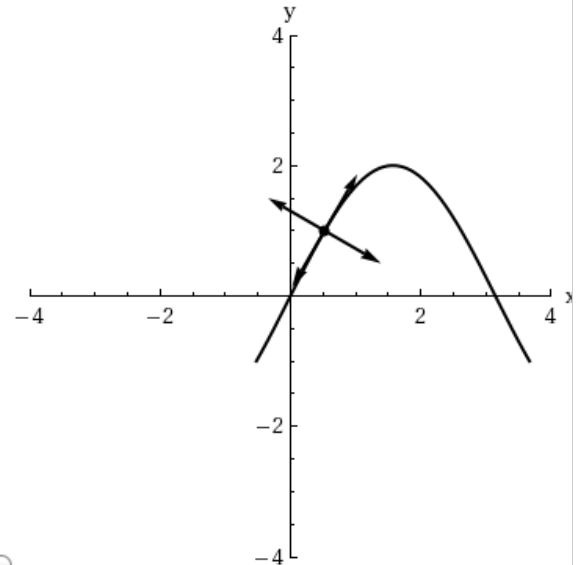
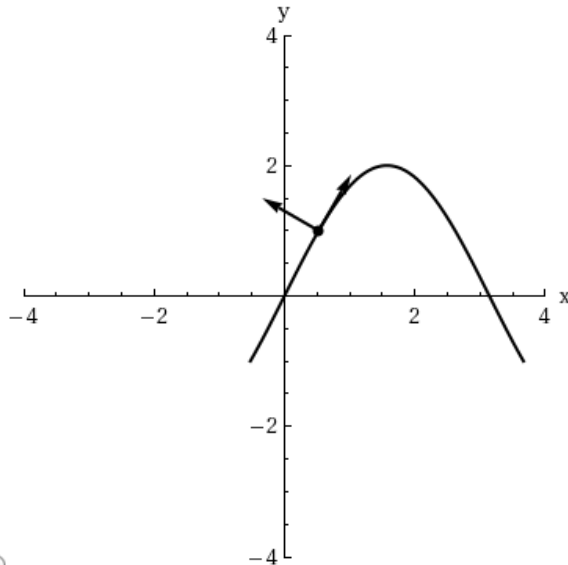
12. Question Details

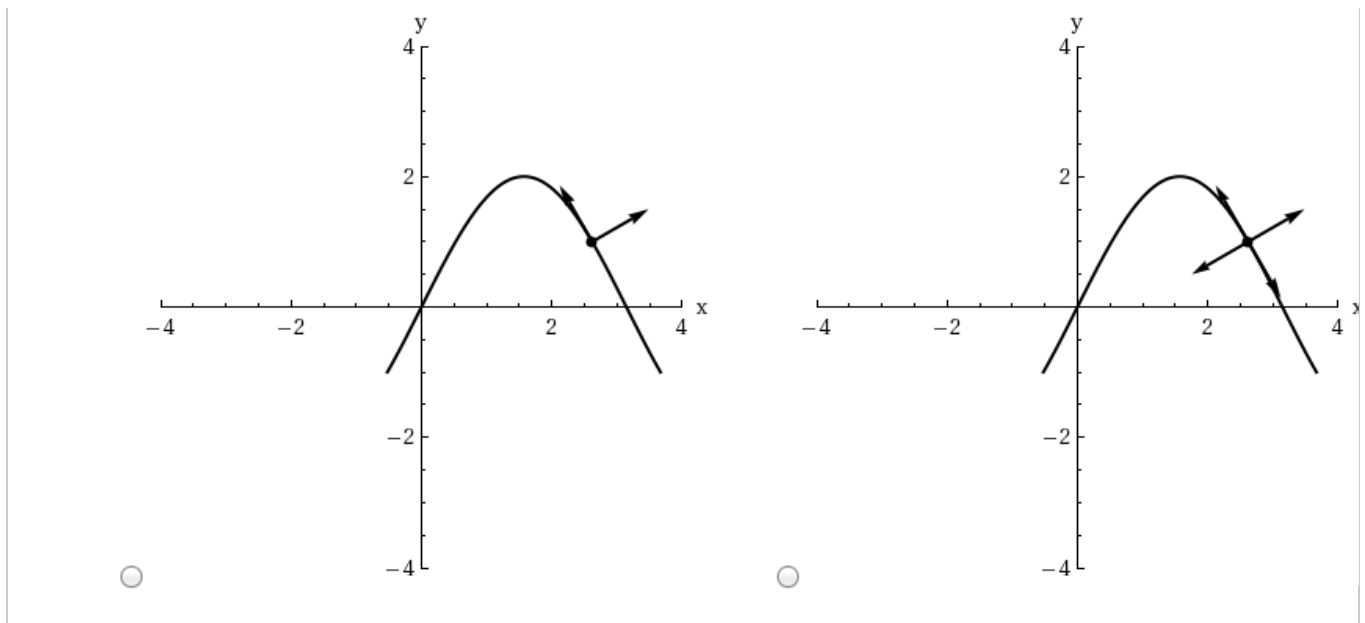
SCalcET7 12.2.042. [1864745]

(a) Find the unit vectors that are parallel to the tangent line to the curve  $y = 2 \sin x$  at the point  $(\pi/6, 1)$ . (Enter your answer as a comma-separated list of vectors.)

(b) Find the unit vectors that are perpendicular to the tangent line.

(c) Sketch the curve  $y = 2 \sin x$  and the vectors in parts (a) and (b), all starting at  $(\pi/6, 1)$ .





## 13. Question Details

SCalcET7 12.2.047. [1815226]

If  $\mathbf{r} = \langle x, y, z \rangle$  and  $\mathbf{r}_0 = \langle x_0, y_0, z_0 \rangle$ , describe the set of all points  $(x, y, z)$  such that  $|\mathbf{r} - \mathbf{r}_0| = 9$ .

The set of points is a

- sphere with radius 81 and center  $(x_0, y_0, z_0)$
- circular cylinder with radius 9, height  $|z_0|$ , and axis the  $z$ -axis
- circular cylinder with radius  $\sqrt{x_0^2 + y_0^2 + z_0^2}$ , height 9, and axis the  $z$ -axis
- sphere with radius  $\sqrt{x_0^2 + y_0^2 + z_0^2}$  and center  $(0, 0, 9)$
- sphere with radius 9 and center  $(x_0, y_0, z_0)$

Assignment Details