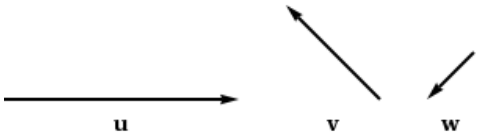
Due: Tue Apr 5 2016 11:00 PM PDT

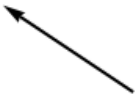
Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15

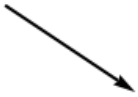
1. Question Details SCalcET7 12.2.005. [1854653]

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



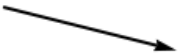
(a) **u** + **v**

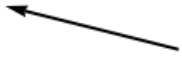


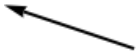


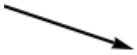
(b) **u** + **w**

(c) **v** + **w**

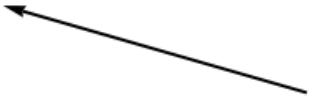


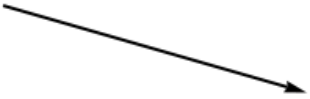






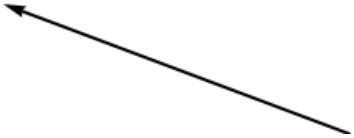
(d) $\mathbf{u} - \mathbf{v}$





(e) $\mathbf{v} + \mathbf{u} + \mathbf{w}$

(f) **u** − **w** − **v**

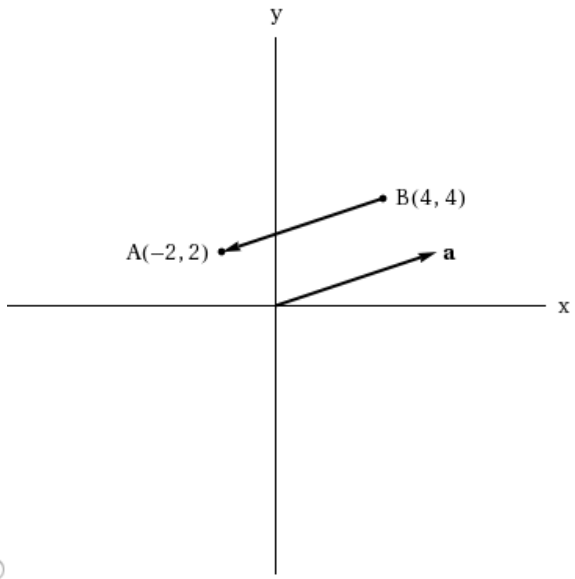


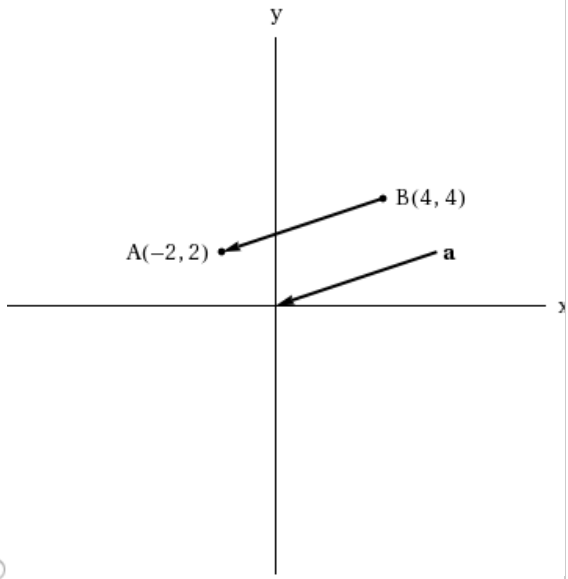
2. Question Details SCalcET7 12.2.009. [2422478]

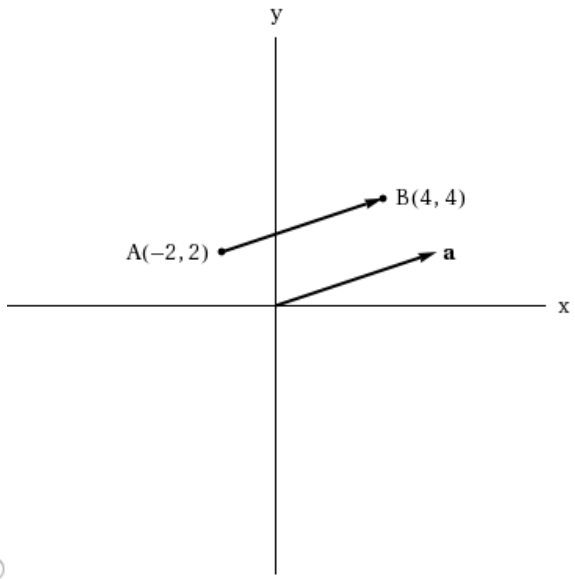
Find a vector **a** with representation given by the directed line segment $\overrightarrow{AB}$.

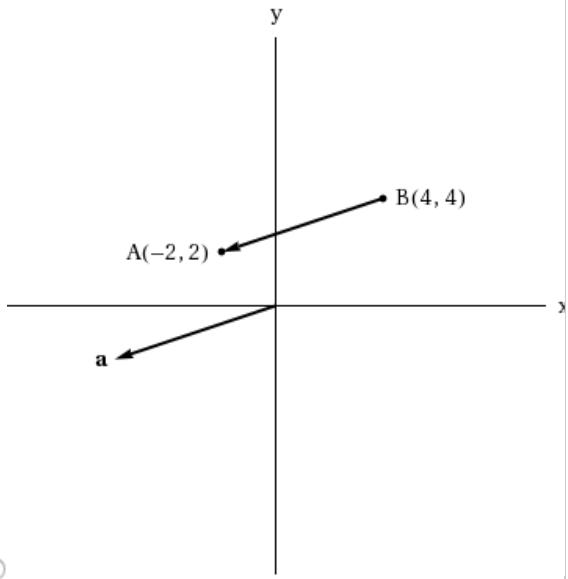
$A(-2, 2)$, $B(4, 4)$

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







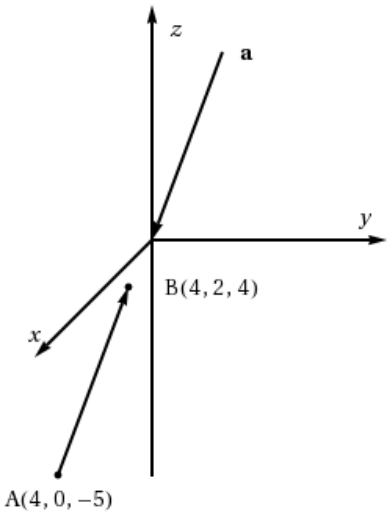


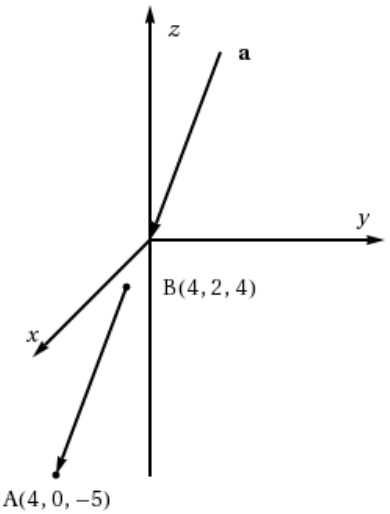
3. Question Details SCalcET7 12.2.014. [1761634]

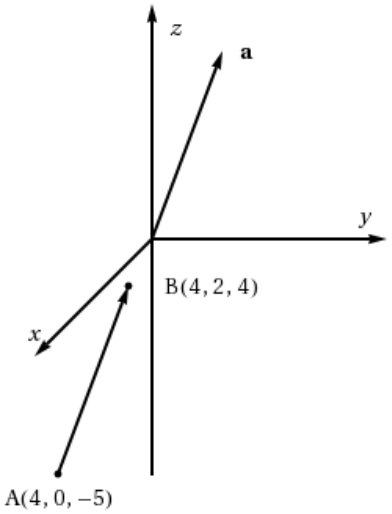
Find a vector **a** with representation given by the directed line segment $\overrightarrow{AB}$.

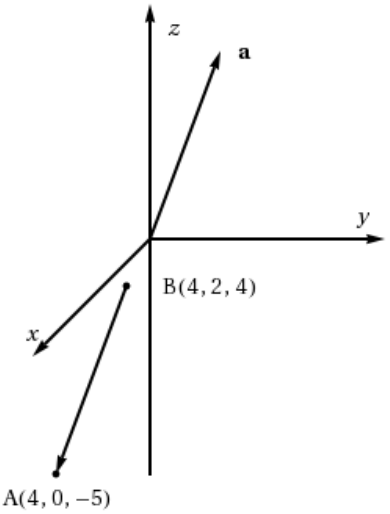
$A(4, 0, -5)$, $B(4, 2, 4)$

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









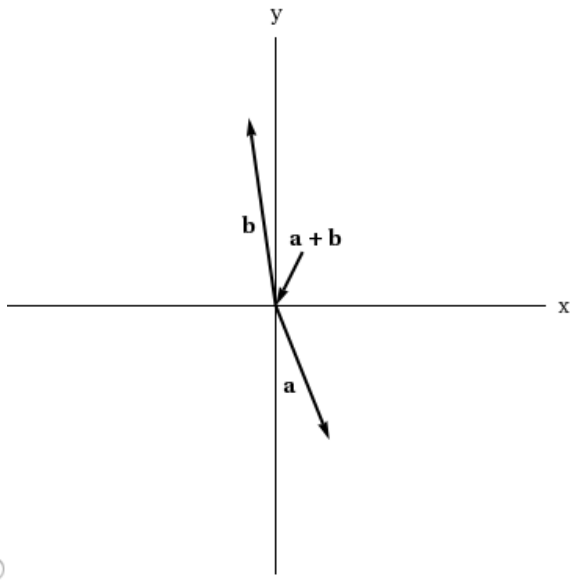
4. Question Details SCalcET7 12.2.016. [1815549]

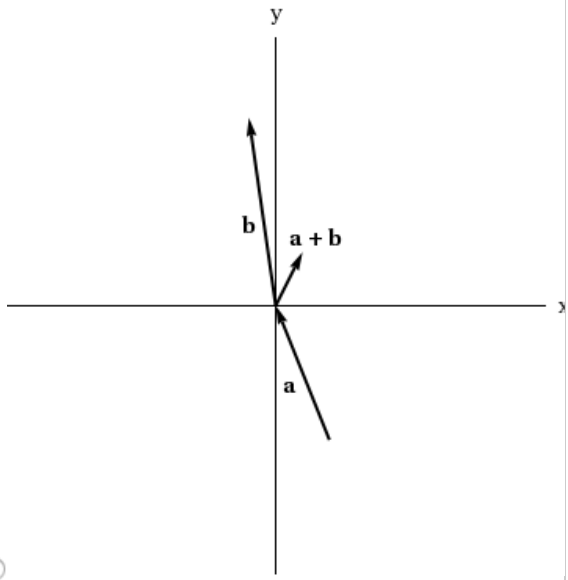
Find the sum of the given vectors.

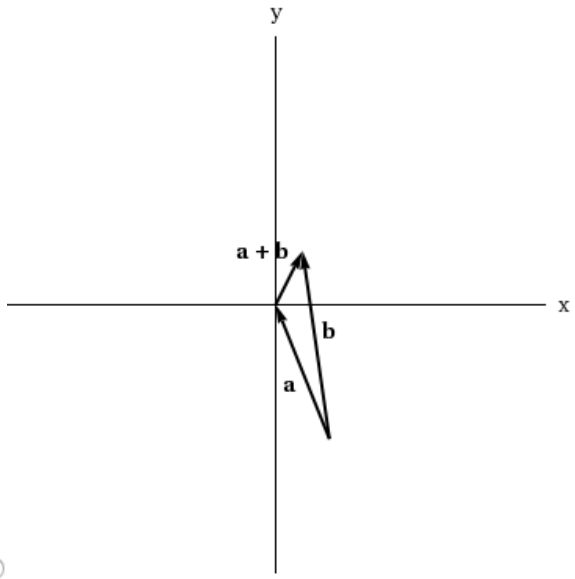
$\mathbf{a} = \langle 2, -5 \rangle, \quad \mathbf{b} = \langle -1, 7 \rangle$

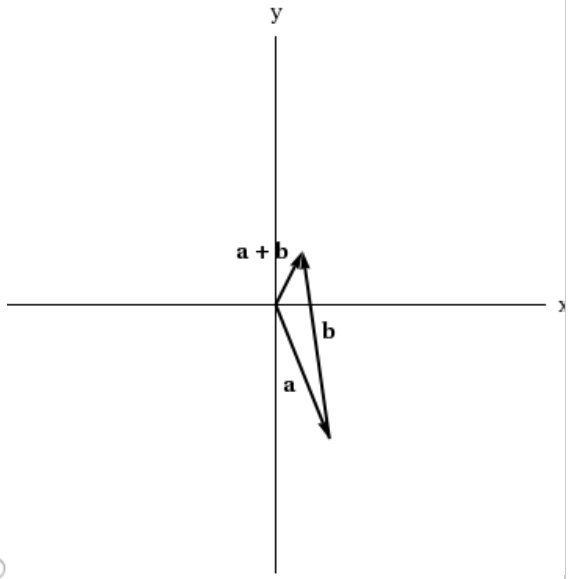
$\mathbf{a} + \mathbf{b} =$ [ ]

Illustrate geometrically.









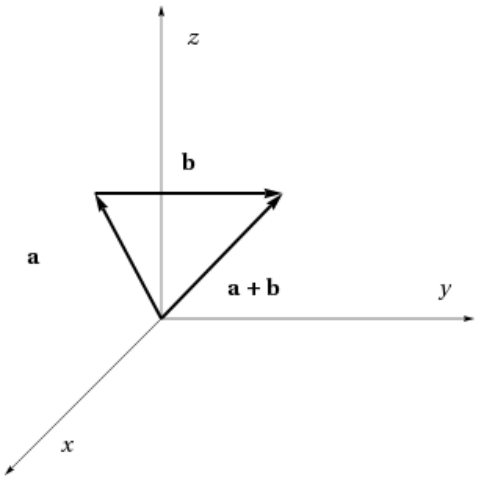
5. Question Details SCalcET7 12.2.017. [1815546]

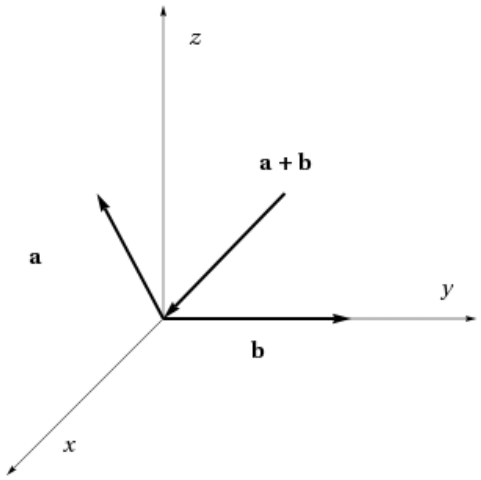
Find the sum of the given vectors.

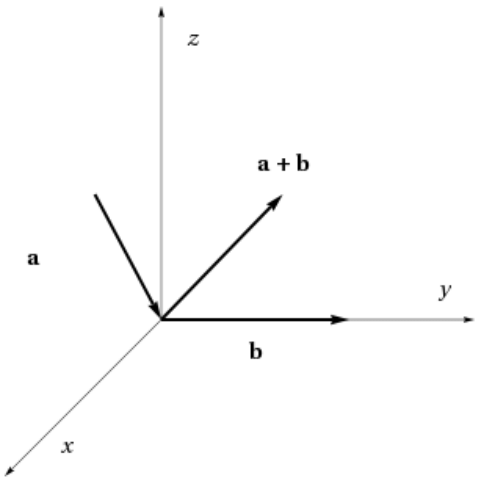
$\mathbf{a} = \langle 3, 0, 4 \rangle, \quad \mathbf{b} = \langle 0, 6, 0 \rangle$

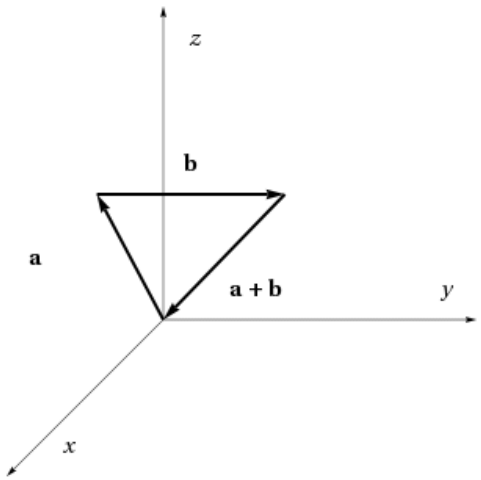
$\mathbf{a} + \mathbf{b} =$ [ ]

Illustrate geometrically.









6. Question Details SCalcET7 12.2.019. [1654874]

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

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

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

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

$|\mathbf{a}| =$

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

7. Question Details SCalcET7 12.2.021. [1761641]

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

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

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

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

$|\mathbf{a}| =$

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

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 $\langle -4, 6, 6 \rangle$ but has length 6.

11. Question Details SCalcET7 12.2.029. [1654060]

If **v** lies in the first quadrant and makes an angle $\pi/3$ with the positive x-axis and $|\mathbf{v}| = 4$, find **v** in component form.

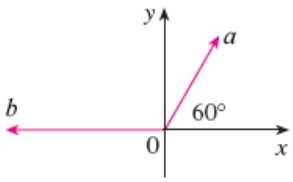
v =

12. Question Details SCalcET7 12.2.033. [1761632]

Find the magnitude of the resultant force and the angle it makes with the positive x-axis. (Let $a = 100$ N and $b = 400$ N. Round your answers to one decimal place.)

magnitude N

angle °



13. Question Details SCalcET7 12.2.041. [1765892]

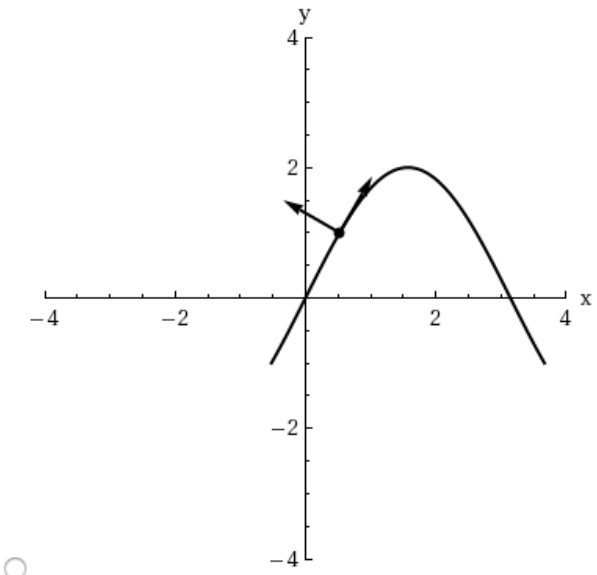
Find a unit vector that is parallel to the line tangent to the parabola $y = x^2$ at the point (5, 25).

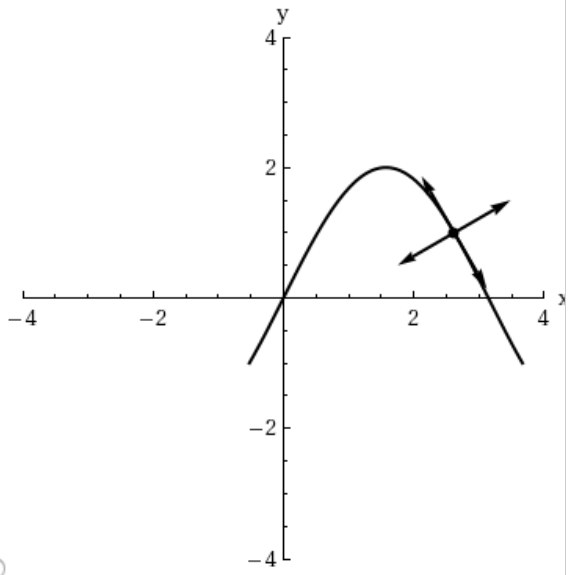
14. Question Details SCalcET7 12.2.042. [1864745]

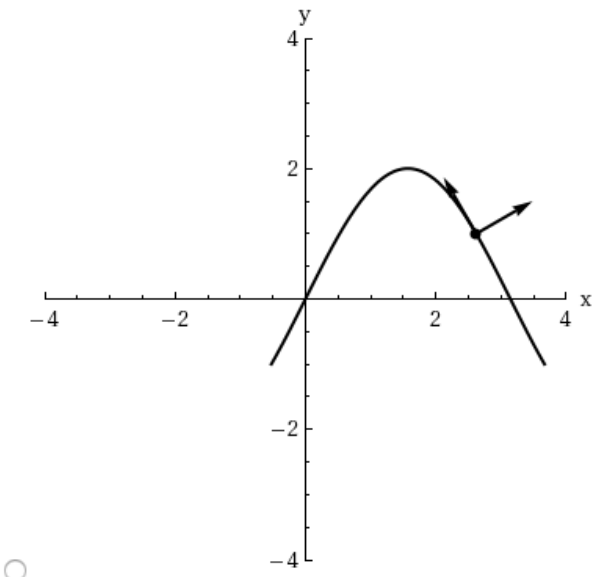
(a) Find the unit vectors that are parallel to the tangent line to the curve $y = 2 \sin x$ at the point $(\pi/6, 1)$. (Enter your answer as a comma-separated list of vectors.)

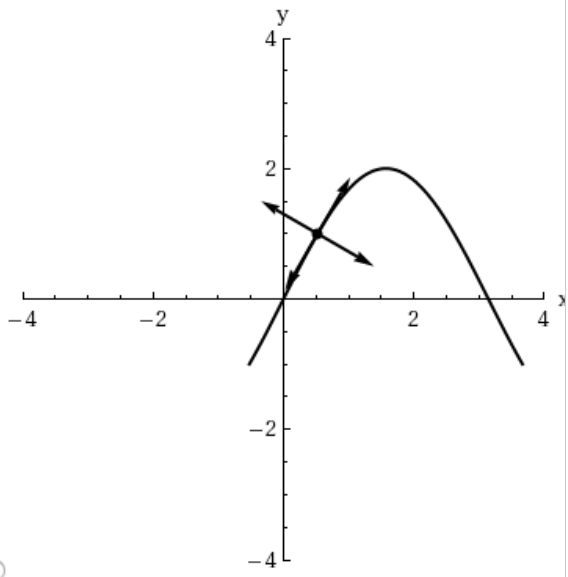
(b) Find the unit vectors that are perpendicular to the tangent line.

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









15. 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

- 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 81 and center (x_0, y_0, z_0)
- sphere with radius 9 and center (x_0, y_0, z_0)
- circular cylinder with radius 9, height $|z_0|$, and axis the z-axis

Assignment Details