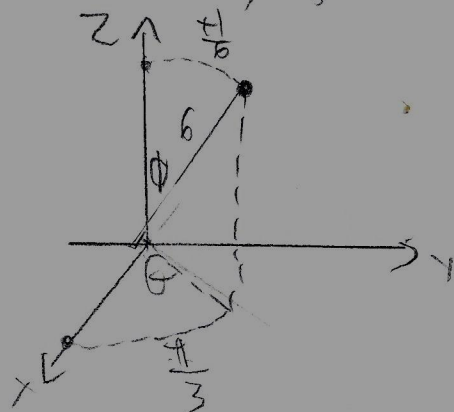


15.8 homework

1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 25
29, 33, 37, 41

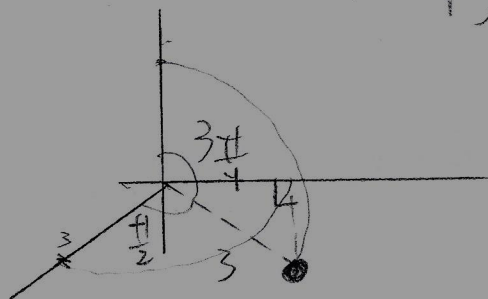
1. a. $(6, \frac{\pi}{3}, \frac{\pi}{6})$



$$(6 \sin(\frac{\pi}{6}) \cos(\frac{\pi}{3}), 6 \sin(\frac{\pi}{6}) \sin(\frac{\pi}{3}), 6 \cos(\frac{\pi}{6}))$$

$$= \left(\frac{3}{2}, \frac{3\sqrt{3}}{2}, 3\sqrt{3} \right)$$

b. $(3, \frac{\pi}{2}, \frac{3\pi}{4})$



$$(3 \sin(\frac{3\pi}{4}) \cos(\frac{\pi}{2}), 3 \sin(\frac{3\pi}{4}) \sin(\frac{\pi}{2}), 3 \cos(\frac{3\pi}{4}))$$

$$= \left(0, \frac{3\sqrt{2}}{2}, -\frac{3\sqrt{2}}{2} \right)$$

2. a. $(0, -2, 0)$

$$\begin{aligned} p^2 &= 4 & \rho &= \cos \phi & -2 &= 2 \sin \theta \\ p &= 2 & \phi &= \frac{\pi}{2} & \theta &= \frac{3\pi}{2} \end{aligned}$$

$$\left(2, \frac{3\pi}{2}, \frac{\pi}{2} \right)$$

b. $(-1, 1, -\sqrt{2})$

$$\begin{aligned} p^2 &= 4 & -\sqrt{2} &= 2 \cos \phi \\ p &= 2 & \cos \phi &= \frac{-\sqrt{2}}{2} \\ & & \phi &= \frac{3\pi}{4} \end{aligned}$$

$$\begin{aligned} -1 &= 2 \sin(\frac{3\pi}{4}) \cos \theta \\ \frac{-\sqrt{2}}{2} &= \cos \theta \\ \theta &= \frac{3\pi}{4} \end{aligned}$$

$$\left(2, \frac{3\pi}{4}, \frac{3\pi}{4} \right)$$