

Part 1

$$\sin\left(\frac{3\pi}{2} + x\right) + \sin\left(\frac{3\pi}{2} + x\right) = -2$$

$$\text{Let } \sin\left(\frac{3\pi}{2} + x\right) = a$$

$$\Rightarrow a + a = -2$$

$$2a = -2$$

$$a = -1$$

$$\sin\left(\frac{3\pi}{2} + x\right) = -1 = \sin(1.5\pi)$$

$$\frac{3\pi}{2} + x = 1.5\pi$$

$$\mathbf{x = 0^{\circ}}$$

Part 2

$$S=4\text{ft}$$

$$\mu=65\text{ft/s}$$

$$\alpha=44^\circ$$

$$S = \mu \cos \theta(t) - \frac{1}{2}gt^2$$

$$-4 = 65 \cos 44t - \frac{1}{2}(32.2)t^2$$

$$-4 = 46.76t - 16.1t^2$$

$$T=2.9\text{s}$$

3.

$$\mu=35^\circ \quad g=9.8$$

Vertical component of velocity

$$\mu \sin \theta = 35 \sin 35 = 20 \text{ m/s}$$

$$t = \frac{2\mu}{g} = \frac{2(20)}{9.8} = 4.08 \text{ seconds}$$

9.

$$P=\$4900, \quad r=3.5\%, \quad n=2 \times 5=10$$

$$Rate = \frac{3.5\%}{2}$$

$$A = P \left(1 + \frac{r}{2} \right)^n$$

$$A = 4900 \left(1 + \frac{1.75}{100} \right)^{10}$$

$$=\$5828.28$$

6.

$$6 + \sqrt[5]{249 - 2x} = 7$$

$$\left(\sqrt[5]{249 - 2x}\right)^{\frac{1}{5}} = 7 - 6 = 1^{\frac{1}{5}} = 1$$

$$-2 = 1 - 249 = -248$$

$$x = 124$$