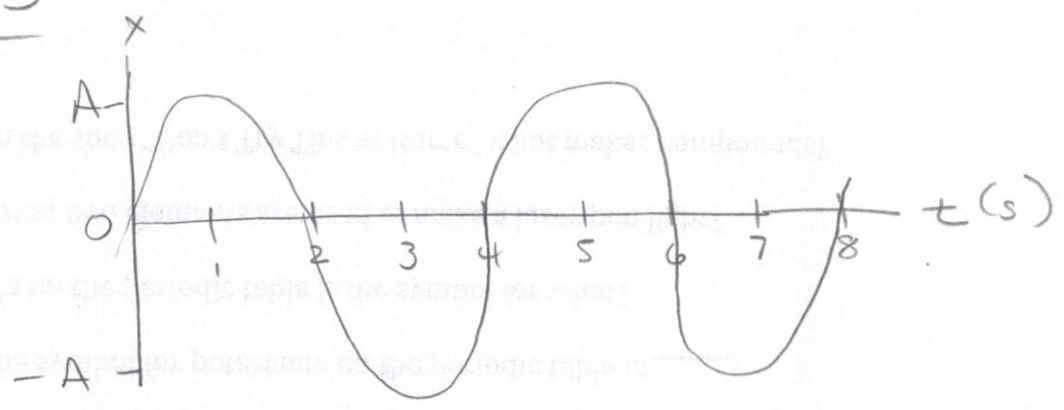


14.3 Q# 3,9 P# 7,9,11

Q 3



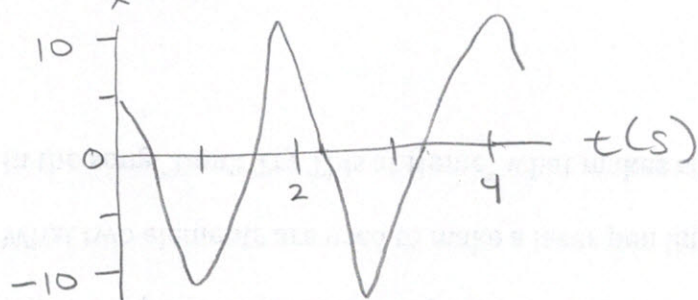
a) 0s, 4s, 8s
when the particle is moving to the right = ^{speed} increasing

b) 2s, 6s
when the particle is moving to the left = ^{speed} decreasing

c) 1s, 3s, 5s, 7s

Date: _____
Name: _____

Q9
x (cm)



first identify the period $(T) = 2 \text{ s}$

$$f = \frac{1}{T}$$

$$f = \frac{1}{2 \text{ s}}$$

$$f = 0.5 \text{ Hz}$$

P7

$$t = 0s$$

$$T = 2.0s$$

$$V_{max} = 40 \text{ cm/s} = 0.40 \text{ m/s}$$

$$a) \quad V_{max} = \left(\frac{2\pi A}{T} \right)$$

$$A = \frac{V_{max} T}{2\pi}$$

$$\frac{(0.40 \text{ m/s})(2.0s)}{2\pi} = 0.127 \text{ m} = 0.13 \text{ m}$$

b) glider's position

~~$$x(t) = A \cos\left(\frac{2\pi t}{T}\right)$$~~

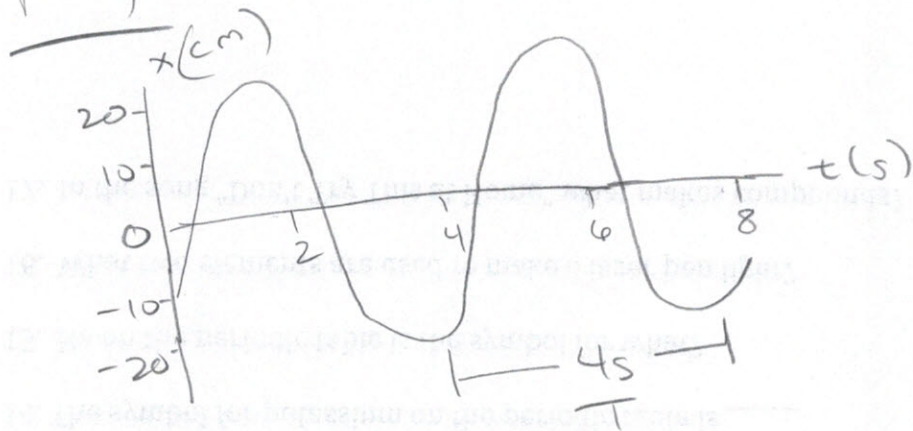
~~$$x = 0.127 \cos\left(\frac{2\pi t}{2.0s}\right)$$~~

~~$$t = 0.25s$$~~

$$x_{0.25s} = (0.127 \text{ m}) \cos\left[\frac{2\pi(0.25s)}{2.0s}\right]$$

$$= 0.090 \text{ m} = 9.0 \text{ cm}$$

$p \neq q$



a) $A = 20 \text{ cm}$
distance from equilibrium (0) to maximum (20cm)

b) $f = \frac{1}{T}$

$\frac{1}{4.0 \text{ s}} = 0.25 \text{ Hz}$

Date: _____

Name: _____

P 11

$$A = 1 \text{ m}$$

$$T = 15 \text{ s}$$

$$f = \frac{1}{T}$$

$$f = 0.067 \text{ Hz}$$

$$f = \frac{1}{15 \text{ s}} = 0.067 \text{ Hz}$$

a)

$$a_{\text{max}} = (2\pi f)^2 A$$

$$2\pi (0.067 \text{ Hz})^2 (1 \text{ m}) = 0.2 \text{ m/s}^2$$

b)

$$\sim \frac{1}{50} g$$