

Q #2

14.1-14.2

Q 2 + P 1,3,5

heart rate =  $\frac{\text{beats}}{\text{minute}}$  per  
← "per" = rate = frequency

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P #1

p. 439

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

$$f = 440 \text{ Hz}$$

$$T = \frac{1}{440 \text{ Hz}}$$

$$\text{or } T = 0.0023$$

$$T = 2.3 \times 10^{-3} \text{ s} \text{ or } 2.3 \text{ ms}$$

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#3

75 heart beats  
1 min

$$\frac{75 \text{ beats}}{60 \text{ sec}} = 1.25 \frac{\text{beats}}{\text{s}} = 1.3 \text{ Hz}$$

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

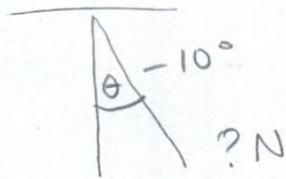
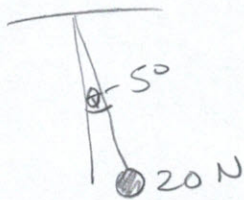
$$T = \frac{1}{1.3 \text{ Hz}} = 0.80 \text{ s}$$

P#5

$$\theta_1 = 5^\circ$$

$$F = 20 \text{ N}$$

$$\theta_2 = 10^\circ$$



<sup>5° to 10°</sup>  
Double angle = Double force

20 N to 40 N

Use Hooke's Law

or

$$F = mg \sin \theta$$
$$20 \text{ N} = m(9.8) \sin 5^\circ$$

$$m = 23.416$$

↙

$$F = 23.416(9.8) \sin 10$$

$$F = 39.848 \text{ N}$$

$$F = 40 \text{ N}$$