Inverse variation
02/29/2012

Student Name: _____

Class: _____

Date: _____

Instructions: **Read each question carefully and select the correct answer.**

1. The length of a sound wave (W) is inversely proportional to the frequency (f) of the sound wave. This relationship is represented by the formula

$$W = \frac{k}{f}$$

where k is a constant to be determined. If the length of a sound wave is 3 meters when the frequency is 8 Hz (Hertz), what is the frequency of the sound wave when the length is 2.85 meters? Round your answer to the nearest tenth, if necessary.

A. 24 Hz
B. 7.6 Hz
C. 22.8 Hz
D. 8.4 Hz

2. The force of gravity varies inversely with the square of the distance between two objects. If the force of gravity is 75 newtons when the square of the distance is 55 km^2, what would the force of gravity be when the square of the distance is 105 km^2? Round your answer to the nearest whole number, if necessary.

A. 4,125 newtons
B. 7,875 newtons
C. 39 newtons
D. 77 newtons

3. If p and q vary inversely and $p = 6$ when $q = 4$, find p when $q = 6$.

A. $p = 24$
B. $p = 144$
C. $p = 6$
D. $p = 4$

4. The current (I) in an electrical circuit varies inversely with the resistance (R). This relationship can be represented by the formula

$$I = \frac{V}{R}$$

where V is a constant voltage that needs to be determined. If the current in a circuit is 35 amps when the resistance is 12 ohms (Ω), what would the current be if the resistance is 35 Ω ?

A. 12 amps
B. 102 amps
C. 420 amps
D. 1,225 amps