

Sample Questions from Yesterday

Simple Pendulum
& Mass Spring Systems
Example Questions

On Your Own #1

Which of the following factors affect the period (think T) of a simple pendulum that is oscillating in simple harmonic motion?

I.) Mass

II.) Length

III.) Amplitude

A.) I only

B.) II only

C.) I & II only

D.) I & III only

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I.) Mass

II.) Length

III.) Amplitude

A.) I only

B.) II only

C.) I & II only

D.) I & III only

On Your Own #2

A load of 50 N attached to a spring hanging vertically stretches the spring 5.0 cm. The spring is now placed horizontally on a table and stretched 11.0 cm. What force is required to stretch the spring this amount?

$$F_s = kx$$

$$50 = k(0.05)$$

$$k =$$

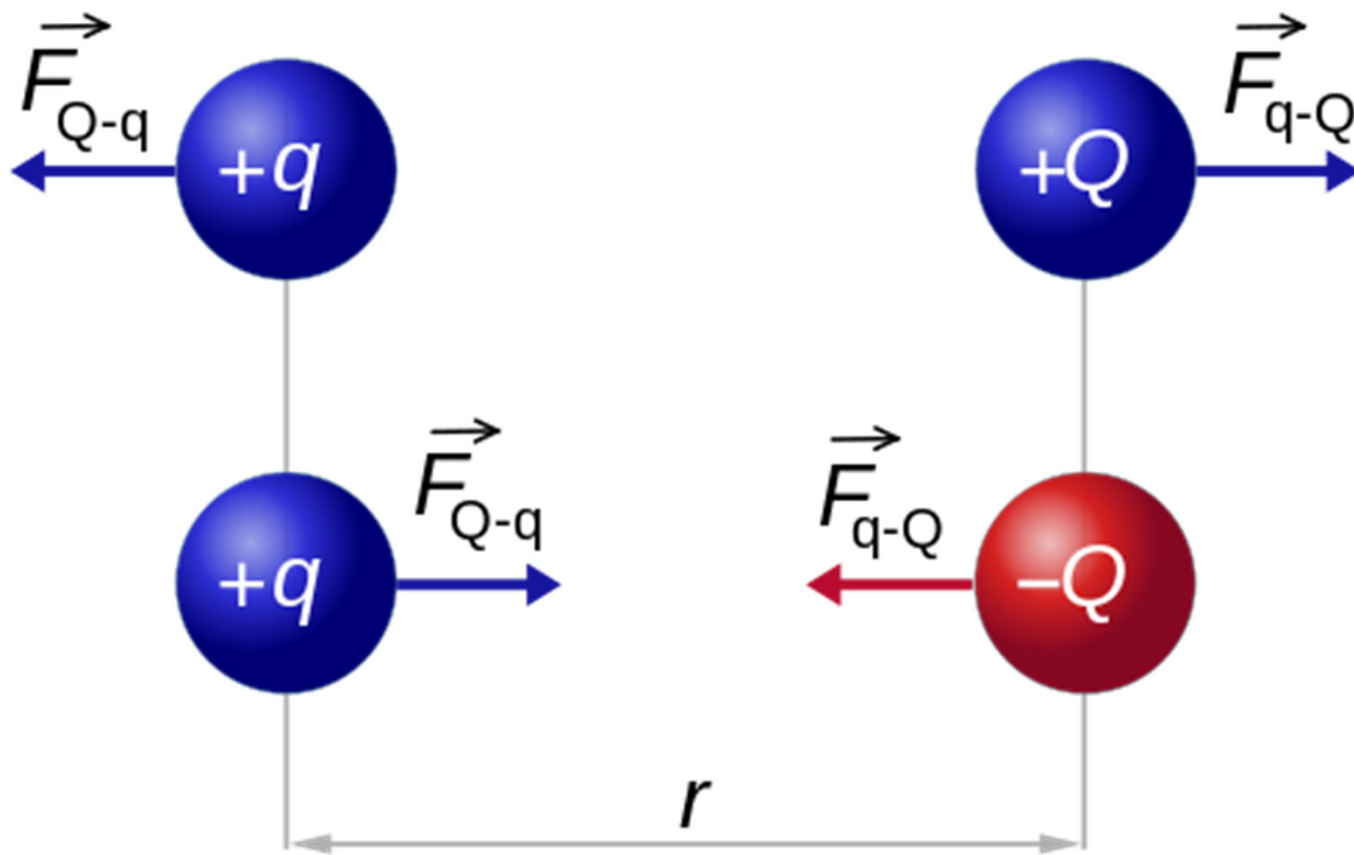
$$F_s = kx$$

$$F_s = (1000)(0.11)$$

$$F_s =$$

Sample Questions

Electrostatics



$$|\vec{F}_{Q-q}| = |\vec{F}_{q-Q}| = k \frac{|q \times Q|}{r^2}$$

On Your Own #1

What is the force exerted on a point charge of $6\mu\text{C}$ by a point charge of $9\mu\text{C}$ that is located 75 cm away?

Use Coulomb's law.

$$F = \frac{kq_1q_2}{r^2}$$

- A.) 486N
- B.) 0.864N
- C.) 864N
- D.) 0.486N

$$k_e = 8.99 \times 10^9 \text{ N m}^2 \text{ C}^{-2}$$

Coulomb's Constant

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A.) 486N

B.) 0.864N

C.) 864N

D.) 0.486N

Plug in known values and solve.

$$F = \frac{(9 \cdot 10^9)(6 \cdot 10^{-6})(9 \cdot 10^{-6})}{0.75^2}$$

$$F = 0.864\text{N}$$

On Your Own #2

What is the force exerted on a point charge of $7\ \mu\text{C}$ by a point charge of $5\ \mu\text{C}$ that is located 75 cm away?

Use Coulomb's law.

$$F = \frac{kq_1q_2}{r^2}$$

$$k_e = 8.99 \times 10^9 \text{ N m}^2 \text{ C}^{-2}$$

Coulomb's Constant

On Your Own #2

What is the force exerted on a point charge of _____ by a point charge of _____ that is located 75 cm away?

Use Coulomb's law.

$$F = \frac{kq_1q_2}{r^2}$$

On Your Own #3

Two point charges, each having a charge of +1C, are two meters apart. If distance between them is doubled, by what factor does the force between them change?

$$k = 9.0 \times 10^9 \frac{N \cdot m^2}{C^2}$$

- A.) 2
- B.) 4
- C.) 1/4
- D.) 1/2

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