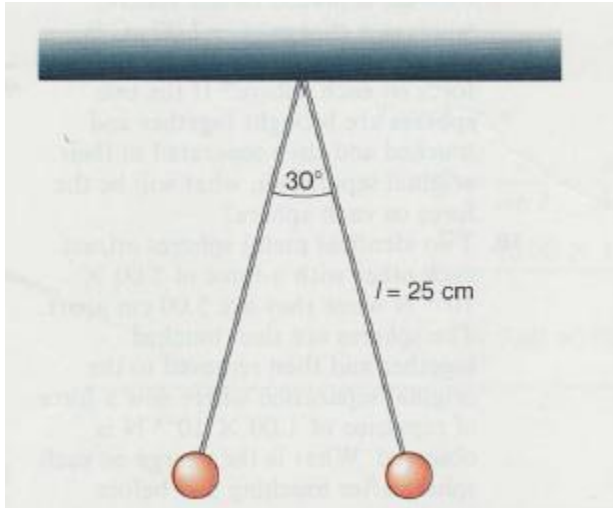


Physics Take Home Quiz 1.18.13

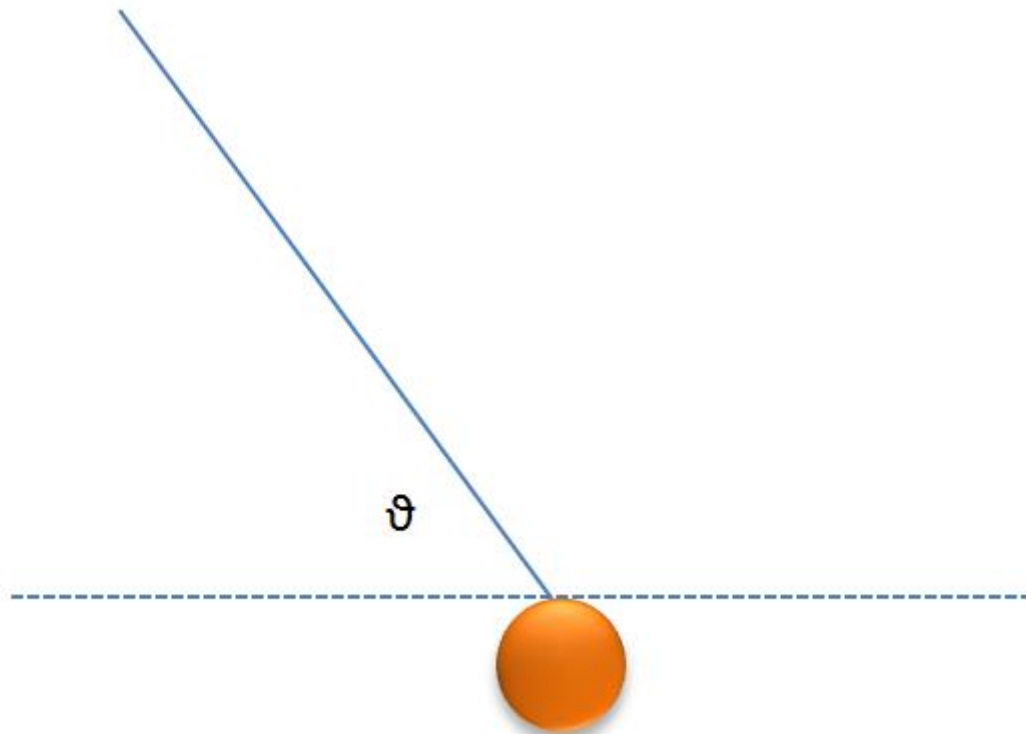
Name: _____

Class: _____

Date: _____

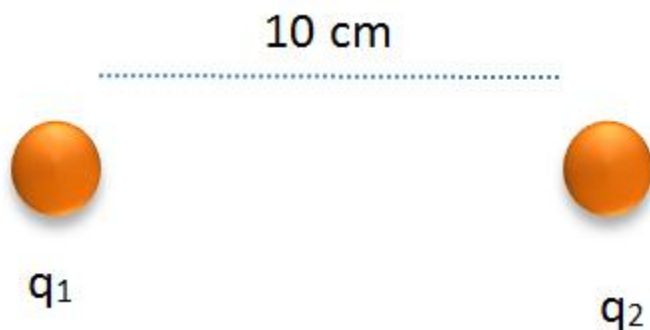


1. For just one of the pith balls, what angle (in degrees) does the string make with the horizontal?



2. Two pith balls are hanging from strings as shown. When drawing a force diagram for each ball, how many significant forces will affect each ball?
- | | | | |
|------|------|------|-------|
| A. 1 | B. 2 | C. 3 | D. 4 |
| E. 5 | F. 6 | G. 0 | H. 10 |

3. A Coulomb is:
- the size of a proton
 - the size of an electron
 - a measure of electric force
 - a unit of charge



4. Two charges are separated by 10 cm as shown. Q_1 has a charge of $2 \mu\text{C}$ and Q_2 has a charge of $3 \mu\text{C}$. Find the Force in Newtons on Q_1 .



5. The drawing above is drawn to scale. While the charge q_1 is held motionless, an additional charge (initially at point A) is moved to point B. As the second charge is moved from A to B, the electric Force _____.
- Doubles
 - Triples
 - Is cut in half
 - decreases by a factor of 3
 - Remains the same
 - decreases by a factor of 4

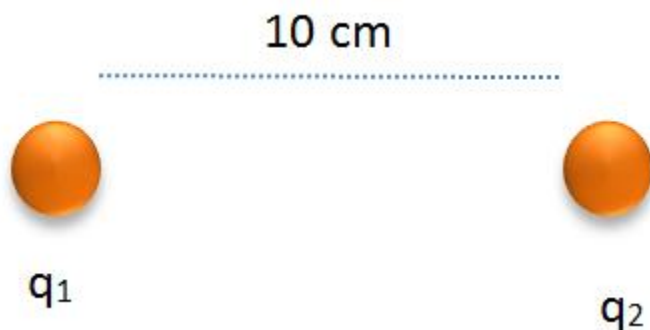
6. In the formula $F = \frac{kq_1q_2}{r^2}$ k is a constant. The value for k is 9×10^9 , but what units should k be in?
- $\frac{\text{kgm}}{\text{s}^2}$
 - Nm
 - $\frac{\text{Nm}^2}{\text{C}^2}$
 - $\frac{\text{Nm}^2}{\text{kgC}^2}$
 - $\frac{\text{Nm}^2}{\text{kg}^2}$
 - N
 - unitless, like friction
 - lbs

7. Wool is rubbed on some plastic, transferring electrons to the plastic. Evaluate the following statement in terms of truth:

When the electrophorus is placed on the charged plastic, electrons in the metal disk move away from the plastic and protons in the metal move toward the plastic.

A. True

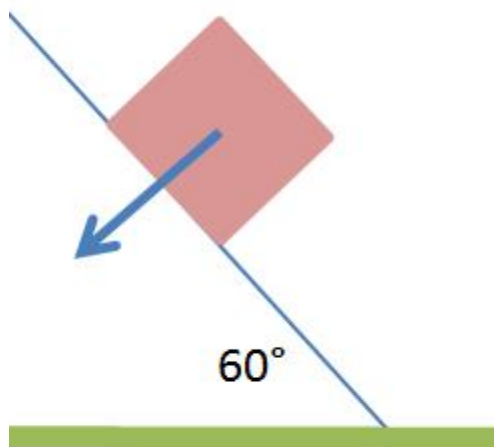
B. False



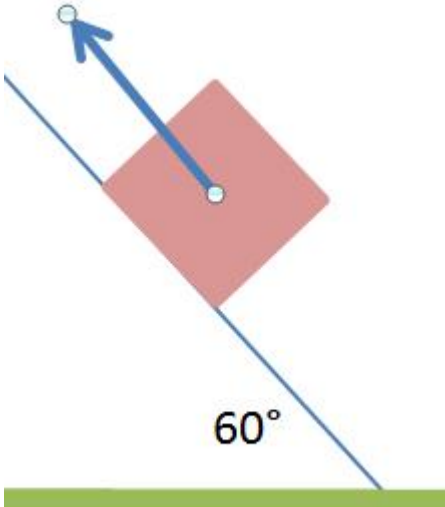
8. Two charges are separated by 10 cm as shown. Q_1 has a charge of $2 \mu C$ and Q_2 has a charge of $3 \mu C$. Find the Force in Newtons on Q_2 .

9. Which of the following pictures could be an example of a normal force in a force diagram?

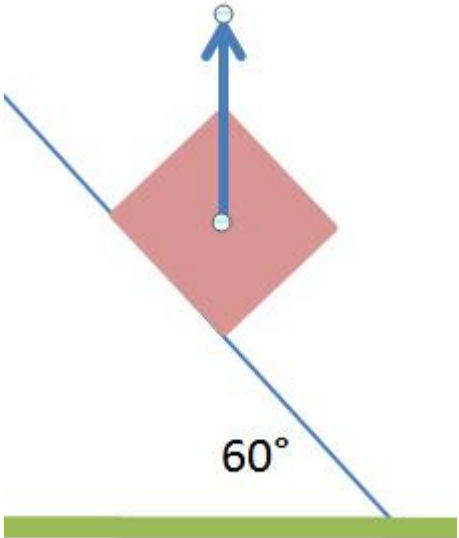
A.



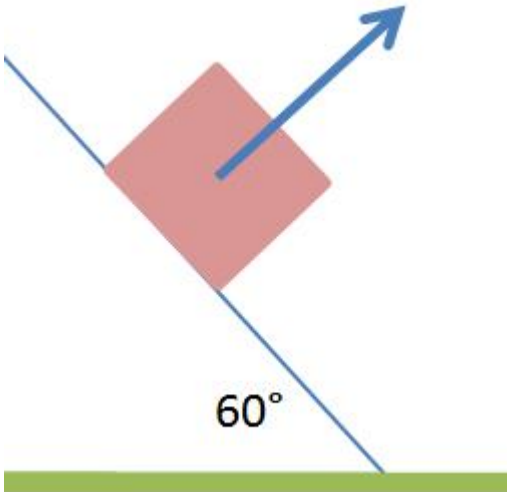
B.

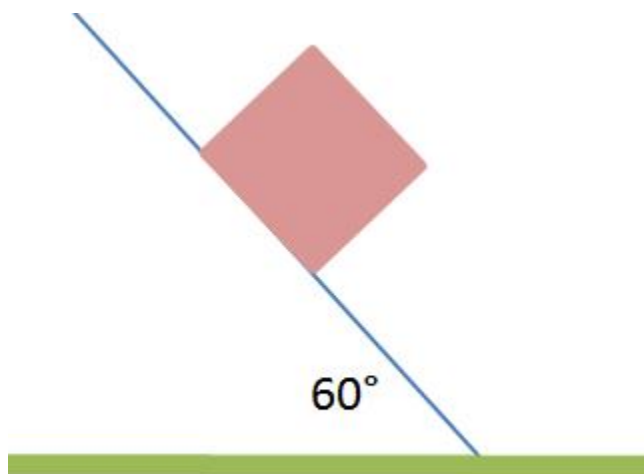


C.



D.





10. The picture above represents a box sliding down a ramp. The mass of the box is 4 kg. The box, after being released from rest, slid 4 m down the ramp in 2.83 seconds. Find the coefficient of friction between the box and the ramp