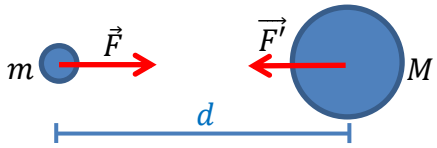
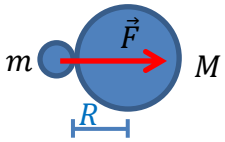
NOM : _____ PHYS 9

Test 3	Gravitation universelle

Le Châtelard

Formules	Constant of gravity $G = 6{,}67 \cdot 10^{-11}$
	

Force of attraction	Force at the surface	Acceleration at the surface
$F = m \cdot \frac{M \cdot G}{d^2}$	$F = m \cdot \frac{M \cdot G}{R^2}$	$a = \frac{M \cdot G}{R^2}$

Exercice 1 **(4 points)** True or False ?

	True	False
a) If the Earth attracts one apple, then the apple attracts the Earth in return.		
b) If we increase the distance between two objects, they attract each other less.		
c) The constant of gravity is the same throughout the universe.		
d) The acceleration on the Moon is greater than the one on Earth.		

Exercice 2 **(6 points)**

a) Knowing that the mass of the Moon is 7×10^{22} kg, the mass of the Earth is 6×10^{24} kg, and the distance between them is $400\,000$ km, calculate the force of attraction that the Earth exerts on the Moon.

b) Caclulate by the same way the force of attraction that the Moon exerts on the Earth.

c) Knowing that the radius of the Moon is 1700 km, calculate the acceleration at the surface of the Moon.