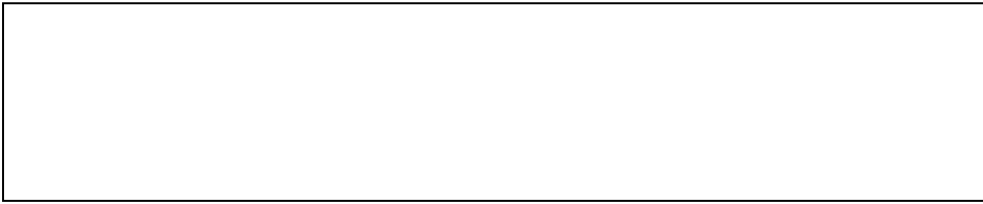


Circular Motion – Guided Notes

When you're in a car and you turn a corner, why do you feel a force towards the outside of the circle?



Centrifugal force is _____ (real/fake), but centripetal force is _____ (real/fake).

Force diagram for the physics tank moving in a circle:



If gravity is pulling a satellite down, why doesn't it fall to the ground?



Force diagram for the satellite:

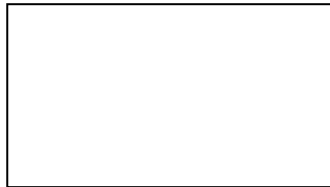


Whirled Cup Force Diagram:



(Note: Never label F_c on a Free Body Force Diagram.)

Centripetal Force Equation:



$F_c =$ _____

$m =$ _____

$v =$ _____

$r =$ _____

When an object is in circular motion (at a constant speed), the acceleration is pointed towards the _____ of the circle.

Centripetal Acceleration Equation:



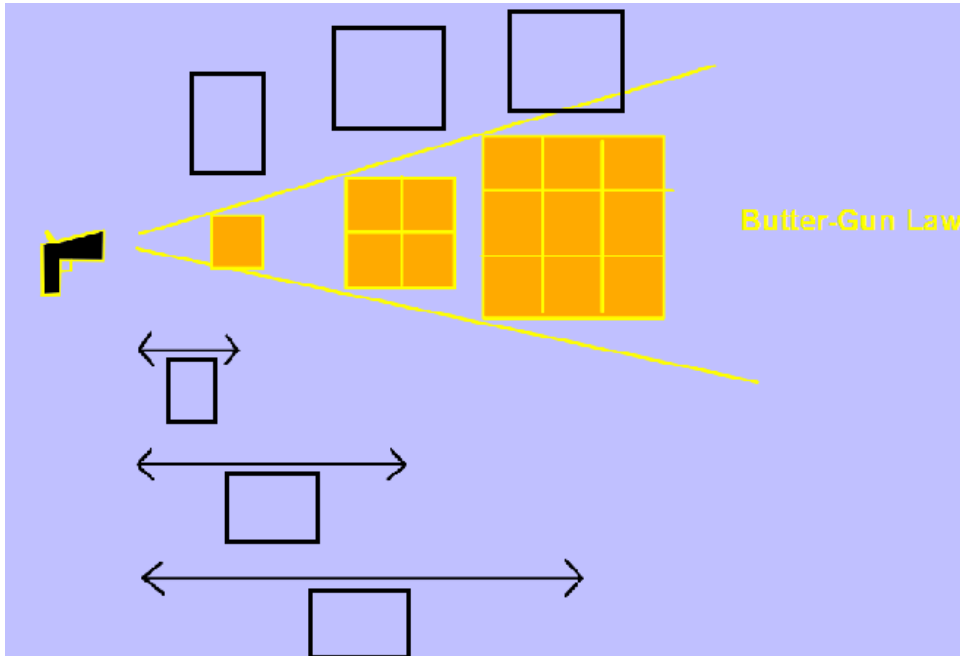
$a_c =$ _____

$v =$ _____

$r =$ _____

Gravitation – Guided Notes

Butter Gun Law:



An inverse square law is where a quantity drops off proportional to _____.

Butter Gun Calculations:

First Calculation

$$\frac{1}{d^2} = \frac{1}{1^2} = \frac{1}{1} = 1''$$

Second Calculation

Third Calculation

Inverse Square Law BUTTER \propto

Newton's Universal Law of Gravitation:



$F_g =$ _____

$G =$ _____

$m_1 =$ _____

$m_2 =$ _____

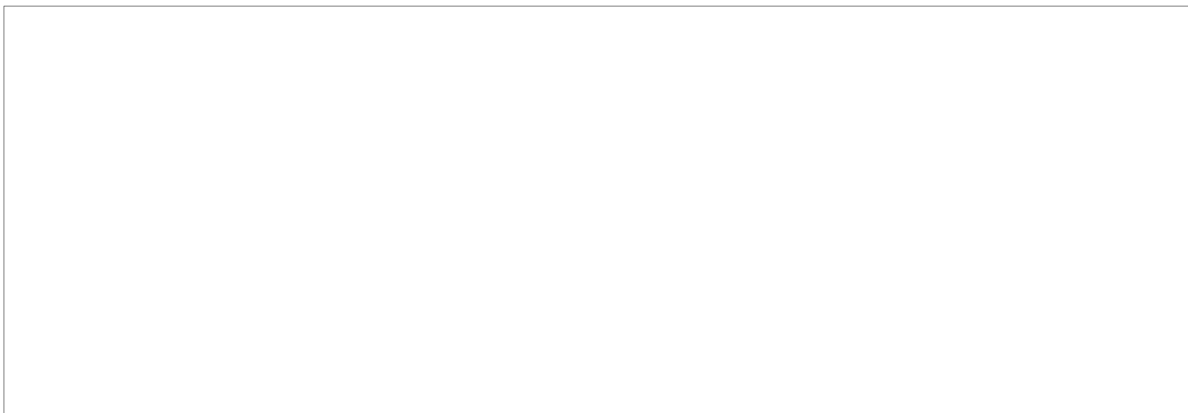
$d =$ _____

Two types of Problems:

- _____
- _____

Example Calculation Problem:

What is the gravitational attraction between a 3 kg baby and the planet Mars?



Example Inverse Square Law Problem:

If you double the distance between two objects, and double the mass of one of the objects, what happens to the force of gravity between them?

Before:



After:

