

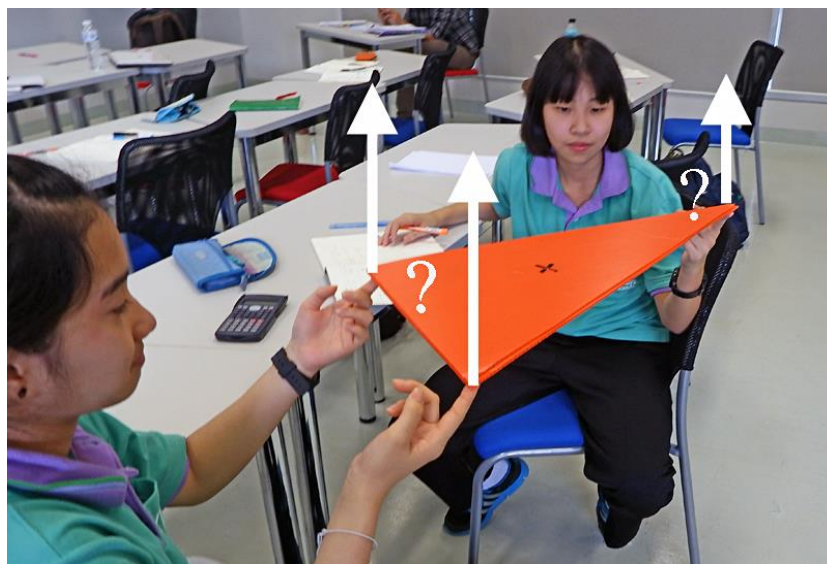
Triangle Demonstration 2: equilibrium

1 Cut a triangle.



2 Call for assistance.

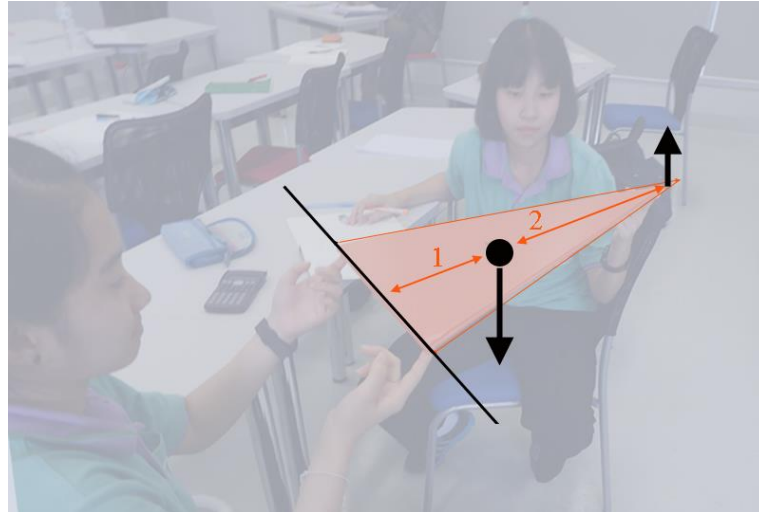
Have students support the triangle horizontally at the points with their fingers.
Ask *Which supporting force will be the larger?*



3 Expect a range of guesses. *Count responses.*

The forces are equal!

1 Remind the assembled that the centre of mass is at the intersection of the medians and the medians are divided in the ratio 1:2. (Triangle 1)

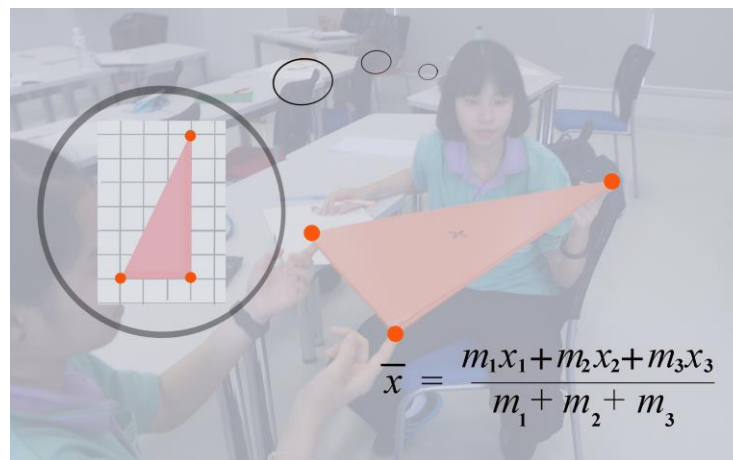


2 Imagine the triangle is replaced by a mass m at the centre of mass and take moments about any side ...

$$mg = 3f \quad \dots \text{ and } \dots \quad f = mg/3$$

The coordinate method (proof)

Replace the triangle with equal masses ($m/3$) at the points.



Write down the coordinates of the centre of mass.