

### An old IIT problem goes like this:

3 particles, each of mass  $m$  are situated at the vertices of an equilateral triangle of the side  $a$ . The only forces acting on the particles are their mutual gravitational forces. It is desired that each particle move in a circle, while maintaining the original mutual separation  $a$ . Then the initial velocity that should be given to each particle is

a)  $2\pi \sqrt{a^2/(3GM)}$

b)  $2\pi \sqrt{a^3/(3GM)}$

c)  $2\pi \sqrt{(3GM)/a^2}$

d)  $2\pi \sqrt{(3GM)/a^3}$

This problem takes some time to be read and much more to be comprehended. However you are expected to solve it in **not more than a minute**, which seems more than just 'impossible'. However would you believe me if I were to say that this problem **can be solved in less than a minute? In fact you need not even read the question fully. Just the last part of the question is sufficient to arrive at the answer.** Had you remembered a small chapter done in your 11<sup>th</sup> standard you would have effortlessly solved it.

**Confused??? or Amazed???**

Well before we actually tell you how, try the problem on your own and click the link only after you have actually given up (which must happen, if at all, after putting in all your efforts).

[See Solution](#)

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