31st July **Higher 5-a-day** Corbettmaths

Expand and simplify

$(x+2)^3$

$(x+2)(x+2)(x+2)$

$(x^2+4x+4)(x+2)$

$x^3+2x^2+4x^2+8x+4x+8$

$x^3+6x^2+12x+8$

A is inversely proportional to N^2

When A = 9, N = 2. $A = \frac{k}{N^2}$

Find A when N = 4. $9 = \frac{k}{4}$

$k = 36$

$A = \frac{36}{N^2}$

$A = \frac{36}{16}$

$A = 2.25$

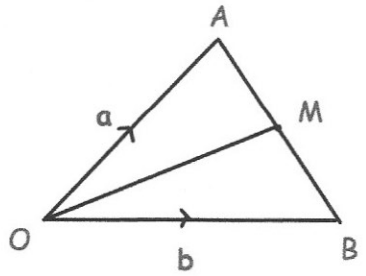
The length of a 200m running track is correct to the nearest metre.

The time taken for Jenna to run the distance is 25.8 seconds measured to the nearest one-tenth of a second.

What is the fastest possible average speed?

$\text{Max speed} = \frac{\text{max distance}}{\text{min time}}$

$= \frac{200.5}{25.75} = 7.7864 \text{ m/s}$



M is the midpoint of AB

Find the vector

$\overrightarrow{AB}$ $\underline{b} - \underline{a}$

or $-\underline{a} + \underline{b}$

Find the vector

$\overrightarrow{AM}$ $\frac{1}{2}\underline{b} - \frac{1}{2}\underline{a}$

or $-\frac{1}{2}\underline{a} + \frac{1}{2}\underline{b}$

Find the vector

$\overrightarrow{OM}$ $\overrightarrow{OA} + \overrightarrow{AM}$

$\underline{a} + \frac{1}{2}\underline{b} - \frac{1}{2}\underline{a}$

$= \frac{1}{2}\underline{a} + \frac{1}{2}\underline{b}$