

6th December



Corbettmaths

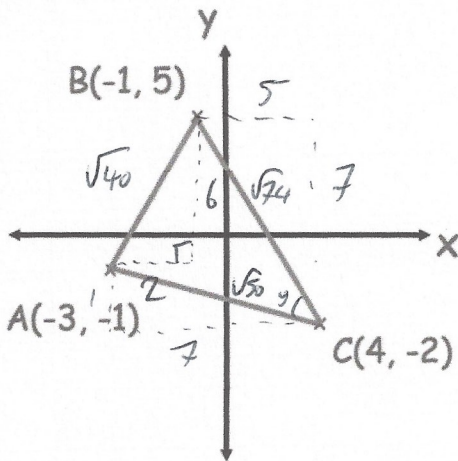
Make m the subject of the formula

$$E = mgh + \frac{1}{4}mv^2$$

$$4E = 4mgh + mv^2$$

$$4E = m(gh + v^2)$$

$$m = \frac{4E}{gh + v^2}$$



Calculate the perimeter of the triangle ABC

$$\sqrt{40} + \sqrt{50} + \sqrt{74} = 21.998$$

Calculate the area of ABC

$$\frac{1}{2} \times \sqrt{74} \times \sqrt{50} \times \sin 46.33$$

$$22 \text{ cm}^2$$

$$\cos y = \frac{(\sqrt{50})^2 + (\sqrt{74})^2 - (\sqrt{40})^2}{2 \times \sqrt{50} \times \sqrt{74}}$$

$$y = 46.33^\circ$$

Time (hours)	1st Year Frequency	2nd Year Frequency
$0 < h \leq 5$	18	0
$5 < h \leq 10$	20	7
$10 < h \leq 20$	41	63
$20 < h \leq 40$	30	54
$40 < h \leq 60$	16	9
$60 < h \leq 100$	9	1

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A professor believed that second year university students spent longer revising than first year university students.

$$\text{1st year } 10 + \frac{29}{41} \times 10 = 17.07$$

$$\text{2nd year } 10 + \frac{60}{63} \times 10 = 19.52$$

Compare the time spent revising by the 1st year and 2nd year university students.

Use estimates of the medians and estimates of the interquartile ranges.

$$\text{1st } LQ = 8.875 \quad UQ = 34.333$$

$$IQR = 25.458$$

$$\text{2nd } LQ = 14.206 \quad UQ = 31.296$$

$$IQR = 17.09$$

The 2nd year students spend longer revising, median of 19.52 hours compared to 17.07

They are more consistent with their revision, as their IQR is much smaller.