

10th June



Corbettmaths

Prove $(2n + 1)(3n - 2) - (6n - 1)(n - 2)$ is always even

$$6n^2 - n - 2 - (6n^2 - 13n + 2)$$

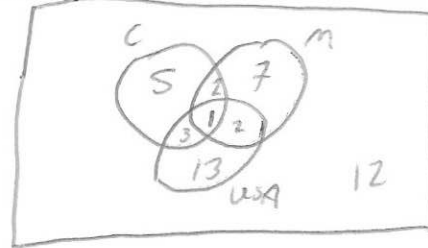
$$12n - 4$$

$$2(6n - 2) \therefore \text{always even}$$

45 students were asked if they have visited Canada, Mexico or the USA.

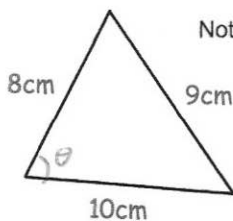
11 students had been to Canada
 1 student had visited all three countries
 2 students had visited Canada and Mexico but not the USA.
 3 students had visited Mexico and the USA. (may include all 3)
 12 students had not visited any of the countries.
 6 out of the 19 students who had visited the USA, had been to at least one of the other countries.
 Two of the 45 students are chosen at random.

Work out the probability that they both had only visited Mexico



$$\frac{7}{45} \times \frac{6}{44}$$

$$= \frac{7}{330}$$



Not to scale

$$\cos \theta = \frac{8^2 + 10^2 - 9^2}{2 \times 8 \times 10}$$

$$\cos \theta = \frac{83}{110}$$

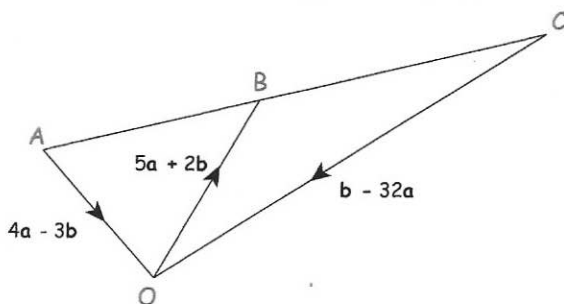
$$\theta = 58.75^\circ$$

Find the area of the triangle.

$$\frac{1}{2} ab \sin C$$

$$\frac{1}{2} \times 8 \times 10 \times \sin 58.75^\circ$$

$$34.197 \text{ cm}^2$$



Is ABC a straight line?

Explain your answer

$$\vec{AB} = 9a - b$$

$$\vec{BC} = 27a - 3b = 3(9a - b)$$

Yes \vec{AB} & \vec{BC} are parallel and both pass through B.