



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

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

$$12n - 4$$

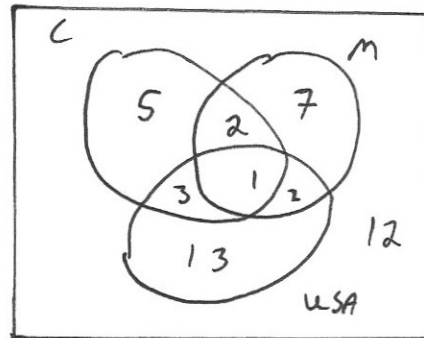
$$2(6n - 2) \therefore \text{even}$$

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

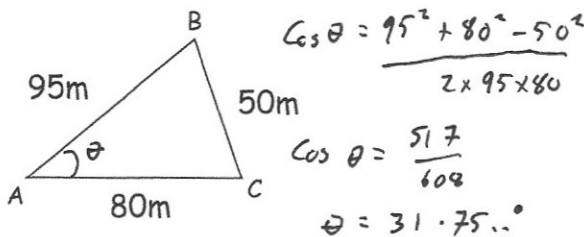
- 11 students had been to Canada.
- 1 student had visited all three countries.
- 2 students had visited Canada and Mexico but not the USA.
- 3 students had visited Mexico and the USA.
- 12 students had not visited any of the countries.
- 6 out the 19 students who had visited the USA, had been to at least 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



$$\frac{7}{45} \times \frac{6}{44} = \frac{7}{330}$$



$$\cos \theta = \frac{95^2 + 80^2 - 50^2}{2 \times 95 \times 80}$$

$$\cos \theta = \frac{517}{608}$$

$$\theta = 31.75 \dots^\circ$$

A farmer rents the field at a rate of £0.50 per square metre per year

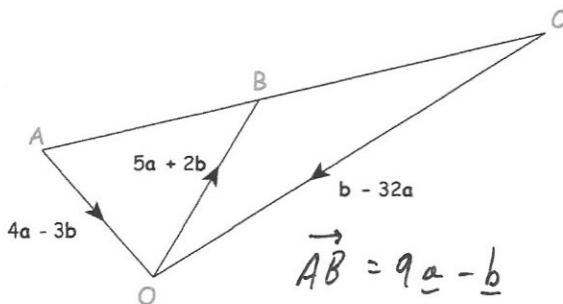
How much does the farmer pay?

$$\frac{1}{2} \times 95 \times 80 \times \sin 31.75 \dots$$

$$= 1999.7558 \dots \text{ m}^2$$

$$£ 998.88$$

(£1000)
if 2000m²



Is ABC a straight line?

Explain your answer

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

Yes, as \vec{AB} & \vec{BC} are ~~parallel~~ parallel and both pass through B