There are fifteen marbles in a jar. Five of the marbles are red, five are blue and five are yellow. Ron randomly selects two marbles and puts them in his pocket.

(a) What is the probability that the two marbles are red? 1

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(b) What is the probability that the two marbles are the same colour? 1

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Find the equation of the line that passes through the point $(0, -3)$ and has an angle of inclination of $30°$. Leave your answer in gradient-intercept form. 2

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In a class of 23 students, on Sunday night 12 watched The Office, 13 watched Stranger Things while 7 watched both.

(a) Find the probability that a student chosen at random watched neither 1

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(b) Find the probability that they watched The Office, given that they watched Stranger Things 1

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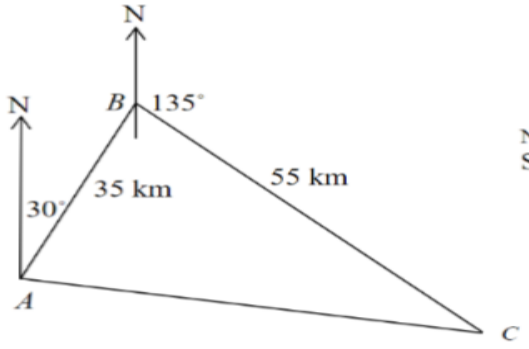
Prove that $\frac{cos\theta}{1+sin\theta} + tan\theta = sec\theta$ 3

(a) Show that $\frac{1}{2x-5} - \frac{1}{2x+5} = \frac{10}{4x^2-25}$ 1

A motorist drives 35 km from Town *A* to Town *B* on a bearing of 030°*T*.

He then drives 55 km to Town *C* that is on a bearing of 135°*T* from Town *B*.



NOT TO SCALE

(b) Find the distance between *A* and *C* to the nearest kilometre. *3*