

**25th May**

Corbettmaths

The  $n$ th term of a sequence is  
 $n^2 - 10n + 27$

By using completing the square, show that every term is positive.

$$= (n-5)^2 - 25 + 27$$

$$= (n-5)^2 + 2 \geq 2 > 0$$

Two ships, A and B, leave a port at midday.

Ship A travelled on a bearing of  $055^\circ$  at a speed of 15km/h

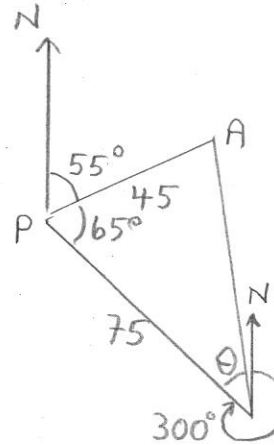
Ship B travelled on a bearing of  $120^\circ$  at a speed of 25km/h

What is the bearing of ship A from ship B at 15:00?

$$AB^2 = 45^2 + 75^2 - 2 \times 45 \times 75 \times \cos 65^\circ$$

$$AB = 69.26 \text{ km}$$

$$\frac{\sin \theta}{45} = \frac{\sin 65^\circ}{AB}$$



$$\sin \theta = 0.5888$$

$$\theta = 36.1^\circ$$

$$\underline{\text{Bearing} = 336.1^\circ}$$

$$-7 < a < -2 \quad \text{and} \quad -5 < b < -1$$

Write down an inequality for each of the following

$$ab$$

$$\underline{2 < ab < 35}$$

$$a^2$$

$$\underline{4 < a^2 < 49}$$

$$\frac{a}{b}$$

$$\underline{\frac{2}{5} < \frac{a}{b} < 7}$$