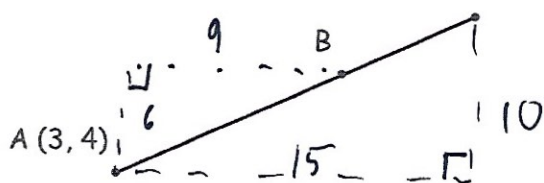


1st January



Corbettmaths

C (18, 14)



ABC is a straight line. $15 \div 5 = 3$ $10 \div 5 = 2$
 $AB : BC = 3 : 2$
 $3 + 2 = 5$ $3 \times 3 = 9$ $2 \times 3 = 6$

Work out the coordinates of the point B

(12, 10)

$$f(x) = 5 - 2x \quad \text{for } -1 \leq x \leq 8$$

Work out the range of $f(x)$

$$f(-1) = 7$$

$$f(8) = -11$$

$$-11 \leq f(x) \leq 7$$

$$y = 2x^3 - 3x^2 + x$$

Work out the value of $\frac{d^2y}{dx^2}$ when
 $x = 2$

$$\frac{dy}{dx} = 6x^2 - 6x + 1$$

$$\frac{d^2y}{dx^2} = 12x - 6$$

$$x = 2 \quad \frac{d^2y}{dx^2} = 12 \times 2 - 6 = 18$$

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

Ship A travelled on a bearing of 025° at a speed of 12km/h $12 \times 3 = 36 \text{ km}$

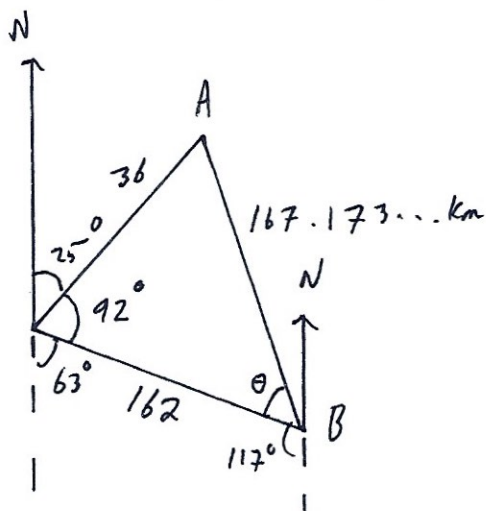
Ship B travelled on a bearing of 117° at a speed of 54km/h $54 \times 3 = 162 \text{ km}$

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

$$AB^2 = 36^2 + 162^2 - 2 \times 36 \times 162 \times \cos 92^\circ$$

$$AB = 167.1737 \dots \text{ km}$$

$$\frac{\sin \theta}{36} = \frac{\sin 92^\circ}{167.17 \dots} \quad \theta = 12.428^\circ$$



$$180^\circ + 117^\circ + 12.428^\circ = 309.4^\circ$$