

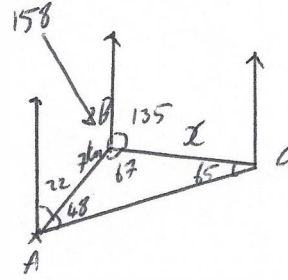


3rd October

Ship B is 7km, on a bearing of 022°, from Ship A. Ship C is located on a bearing of 070° from Ship A and on a bearing of 135° from Ship B.

Work out the distance of Ship C from Ship B.

$$\frac{x}{\sin 48} = \frac{7}{\sin 69} \quad x = 5.74 \text{ km}$$



Since
 $2x + 2y = 360^\circ$
 (angles at a point)
 $x + y = 180^\circ$

Prove the opposite angles in a cyclic quadrilateral add to 180°

Work out the nth term for the sequence $an^2 + bn + c$

3, 9, 17, 27, 39 ... 3 9 17 27
 6 8 10

$a=1 \quad b=3 \quad c=-1 \quad 2 \quad 2$

$$n^2 + 3n - 1$$

Find the 20th term in the sequence

459

Expand and simplify

$$(3 + \sqrt{2})^3 = (3 + \sqrt{2})(3 + \sqrt{2})(3 + \sqrt{2})$$

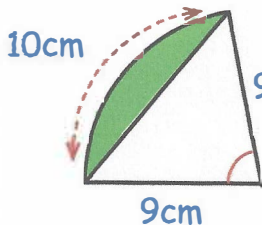
$$= 9 + 3\sqrt{2} + 3\sqrt{2} + 2$$

$$= 11 + 6\sqrt{2}$$

$$(11 + 6\sqrt{2})(3 + \sqrt{2})$$

$$= 33 + 11\sqrt{2} + 18\sqrt{2} + 12$$

$$= 45 + 29\sqrt{2}$$



$$\frac{\theta}{360} \times \pi \times 18 = 10$$

$$\theta \times \pi = 200$$

$$\theta = 63.66^\circ$$

$$\frac{1}{2} \times 9 \times 9 \times \sin 63.66$$

$$= 36.29578...$$

Calculate the area of the segment

$$\frac{63.66}{360} \times \pi \times 9^2 = 45$$

$$45 - 36.29578... =$$

$$8.70422 \text{ cm}^2$$