



The first 4 terms of a sequence are:
400, 390, 375, 355 ...

-10 -15 -20
-5 -5

Which term is the first to be negative?

$$a = -2.5$$

$$b = -2.5$$

$$c = 405$$

$$-2.5n^2 - 2.5n + 405$$

$$13^{\text{th}} \text{ term } (-50)$$

=

Express $(5 - \sqrt{2})^2$ in the form $a + b\sqrt{2}$, where a and b are integers to be found

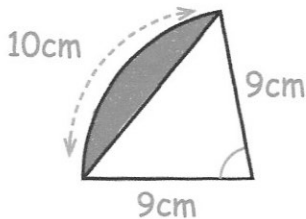
$$(5 - \sqrt{2})(5 - \sqrt{2})$$

$$25 - 5\sqrt{2} - 5\sqrt{2} + 2$$

$$27 - 10\sqrt{2}$$

Factorise $3x^2 - 17x + 10$

$$(3x - 2)(x - 5)$$



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

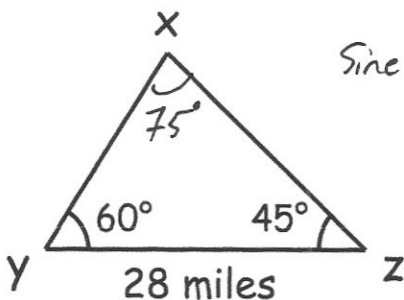
$$\theta = 63.6619\dots^\circ$$

Calculate the area of the segment

$$\frac{1}{2} \times 9 \times 9 \times \sin 63.66^\circ = 36.295\dots \text{ cm}^2$$

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

$$45 - 36.295\dots = 8.7 \text{ cm}^2$$



Sine Rule

How much closer is the boat, at point X, to the port at Y than the port at Z?

$$\frac{28}{\sin 75} = \frac{XY}{\sin 45} = \frac{XZ}{\sin 60}$$

$$XY = 20.497 \quad XZ = 25.104$$

$$4.607 \text{ miles}$$

$$4.6 \text{ miles}$$