



8th October

A circle has equation $x^2 + y^2 = 64$
 Find the circumference of the circle
 $r = 8$
 $d = 16$

$$C = \pi \times 16$$

$$= 16\pi$$

or

$$50.265$$

$BC^2 = AB^2 + AC^2 - 2 \times AB \times AC \times \cos ABC$
 $BC^2 = 23.5^2 + 25^2 - 2 \times 23.5 \times 25 \times \cos 57.5$
 $BC = 23.36$

AB = 23cm to the nearest number
 AC = 20cm to one significant figure
 Angle ABC = 55° to the nearest 5°

Calculate the largest possible length of BC

23.36cm

A helicopter leaves town A and flies 8km due North to town B. The helicopter then flies on a bearing of 105° for 15km until it reaches town C.

Calculate the direct distance from town A to town C.

$$AC^2 = 8^2 + 15^2 - 2 \times 8 \times 15 \cos 75$$

15.063km

Work out $(\sqrt{8} + \sqrt{12})^2$

$$(\sqrt{8} + \sqrt{12})(\sqrt{8} + \sqrt{12})$$

$$8 + \sqrt{96} + \sqrt{96} + 12$$

$$20 + 8\sqrt{6}$$

a is directly proportional to \sqrt{c} .
 w is inversely proportional to a^3 .

When $c = 49$, $a = 35$
 When $a = 2$, $w = 16$.

Find the value of w when $c = 4$.

$a \propto \sqrt{c}$
 $a = k\sqrt{c}$
 $35 = k \times \sqrt{49}$
 $k = 5$
 $a = 5\sqrt{c}$

$w \propto \frac{1}{a^3}$
 $w = \frac{k}{a^3}$
 $k = 128$
 $w = \frac{128}{a^3}$
 $w = \frac{128}{10^3} = 0.128$

when $c = 4$
 $a = 10$