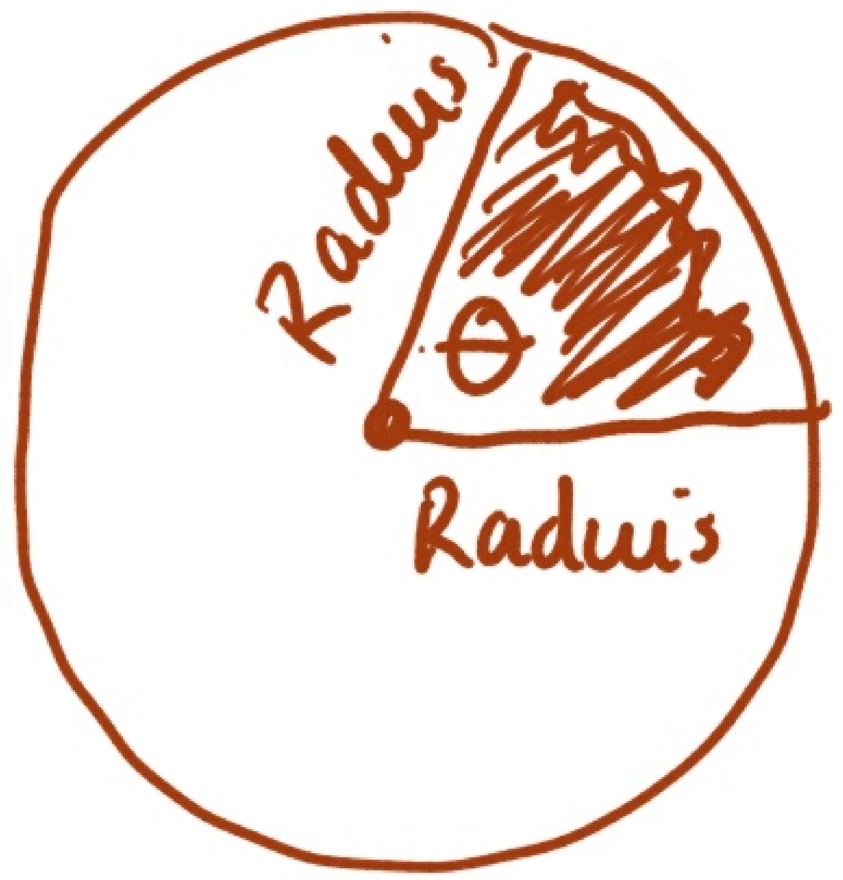
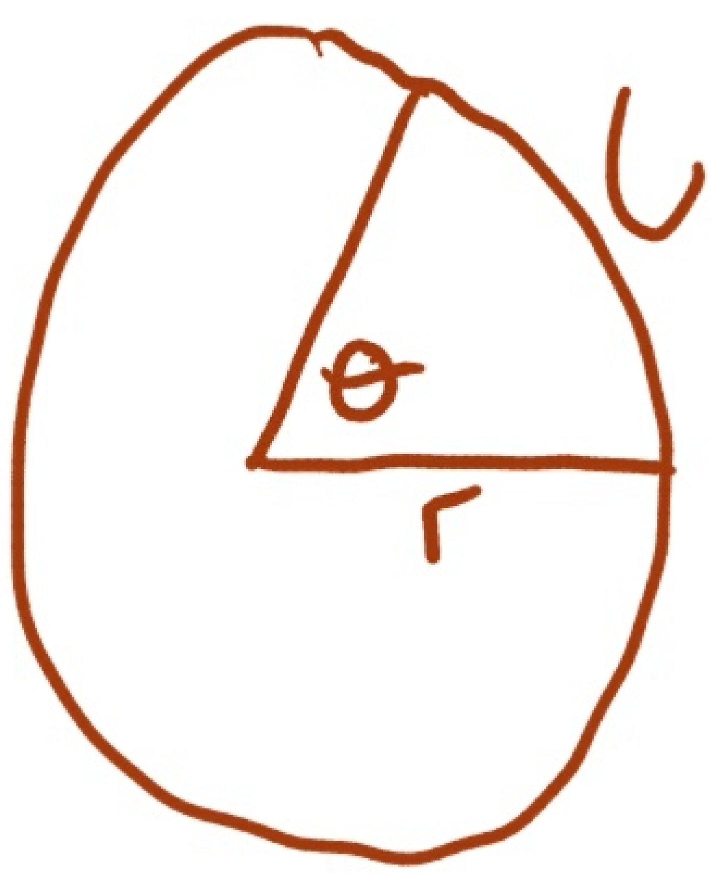
Sectors



θ - "teta" Greek for angle.

Angles will be given in degrees.

Pg 9 of Log Tables



l is the arch of the sector

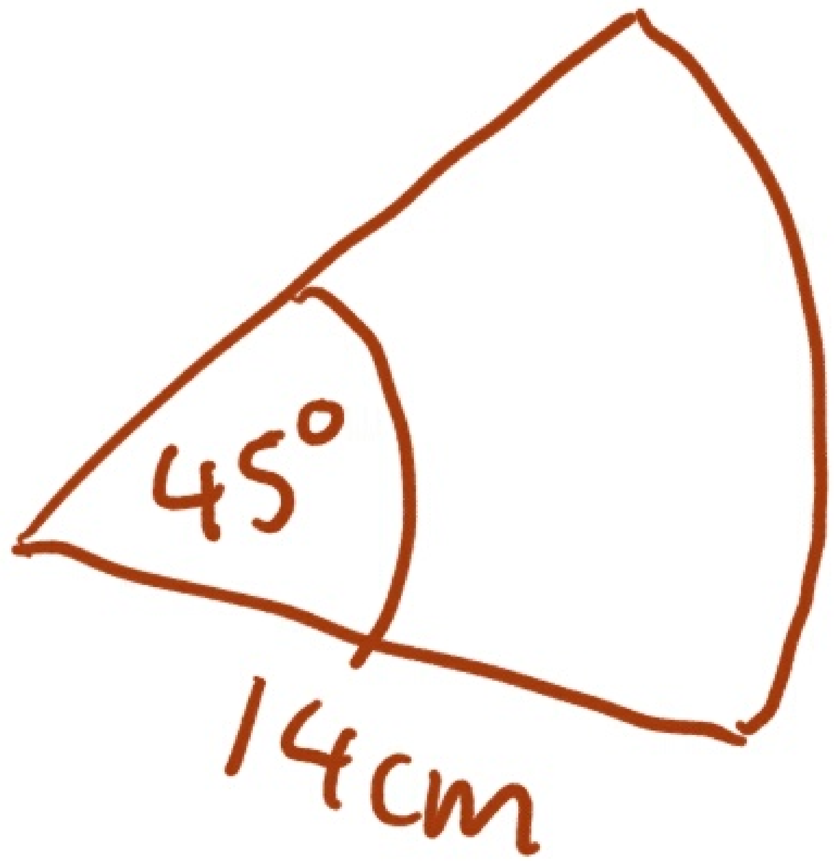
A = Area

2 formula

① $l = 2\pi r\left(\frac{\theta}{360}\right)$

② $A = \pi r^2\left(\frac{\theta}{360}\right)$

Eg 1 Find the area of the sector



Radius is 14

$\theta = 45°$

Formula $= \pi r^2 \left(\frac{\theta}{360}\right)$

Use π as $\frac{22}{7}$

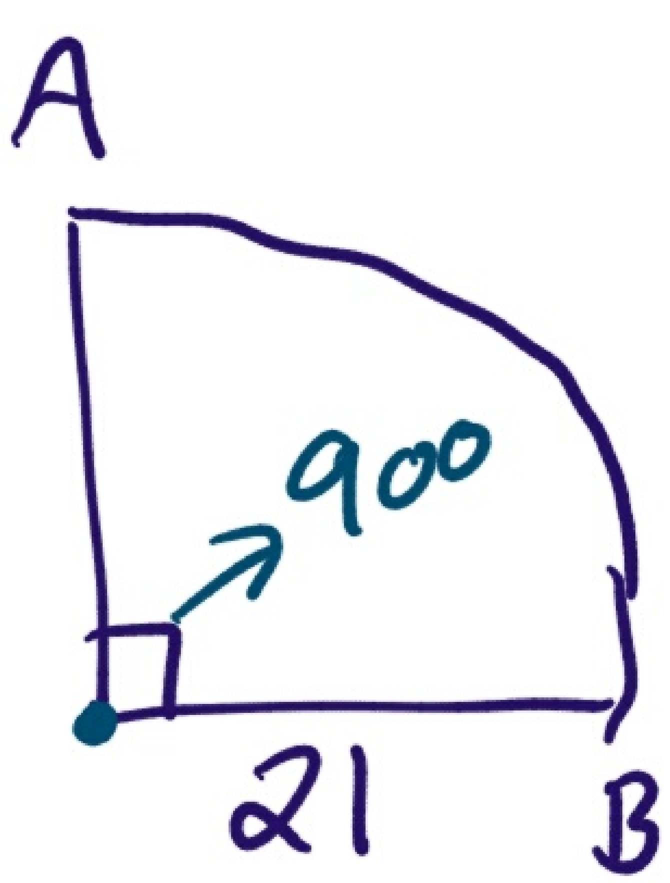
In put values into the formula

$$A = \underbrace{\left(\frac{22}{7}\right) \times (14)^2 \times \left(\frac{45}{360}\right)}_{\text{calculator}} = 77\,cm^2$$

H/W
Pg 96
Q 7, 9.

Log Tables Pg 8. $A = \pi r^2 \left(\frac{\theta}{360}\right)$

$\pi = \frac{22}{7}$



$\theta = 90°$
radius $(r) = 21$
$\pi = \frac{22}{7}$

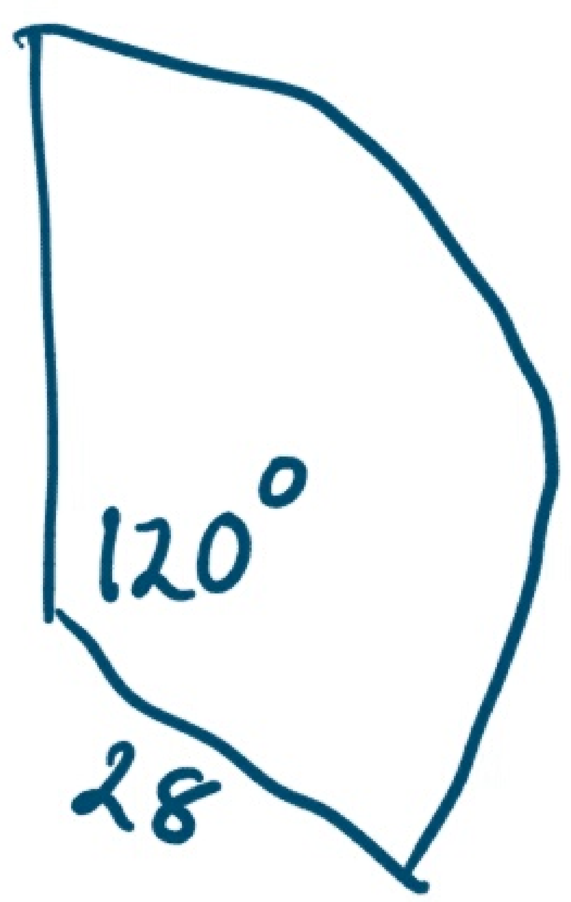
Sub in to formula.

$\pi \times r^2 \times \frac{\theta}{360}$

$A = \underbrace{\left(\frac{22}{7}\right) \times (21)^2 \times \left(\frac{90}{360}\right)}_{\text{Calculator}}$

$A = 346.5$

$A = \pi r^2 \frac{\theta}{360}$



$\pi = \frac{22}{7}$

$r = 28$

$\theta = 120$

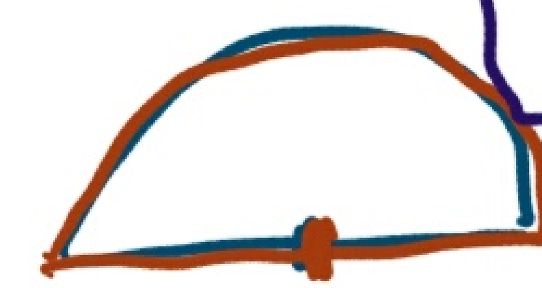
$$A \quad \underbrace{\overset{\pi}{\left(\frac{22}{7}\right)} \times \overset{r^2}{(28)} \times \overset{\frac{\theta}{360}}{\left(\frac{120}{360}\right)}}$$

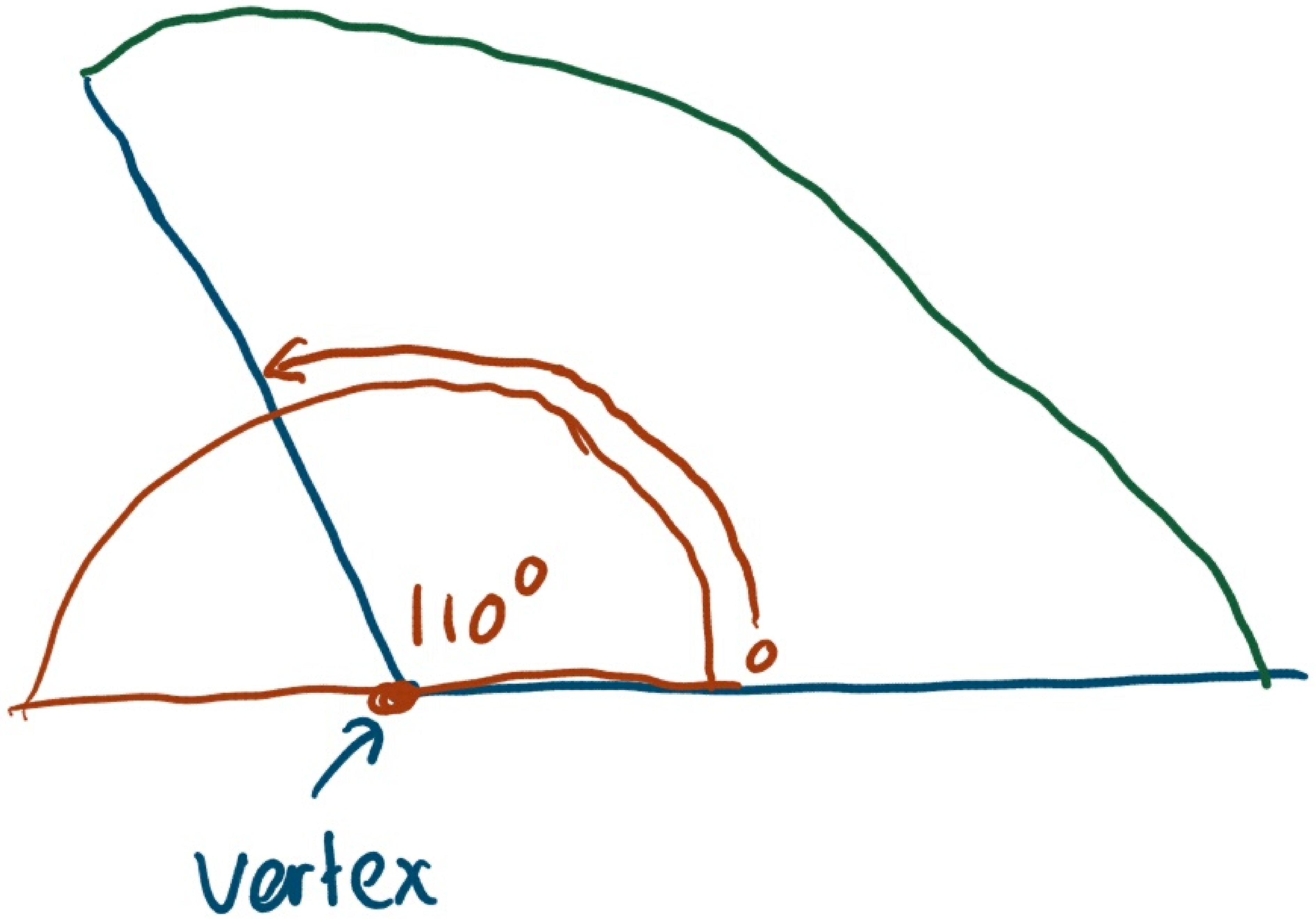
$A = 821.\dot{3}$

To use a protractor to find an angle.

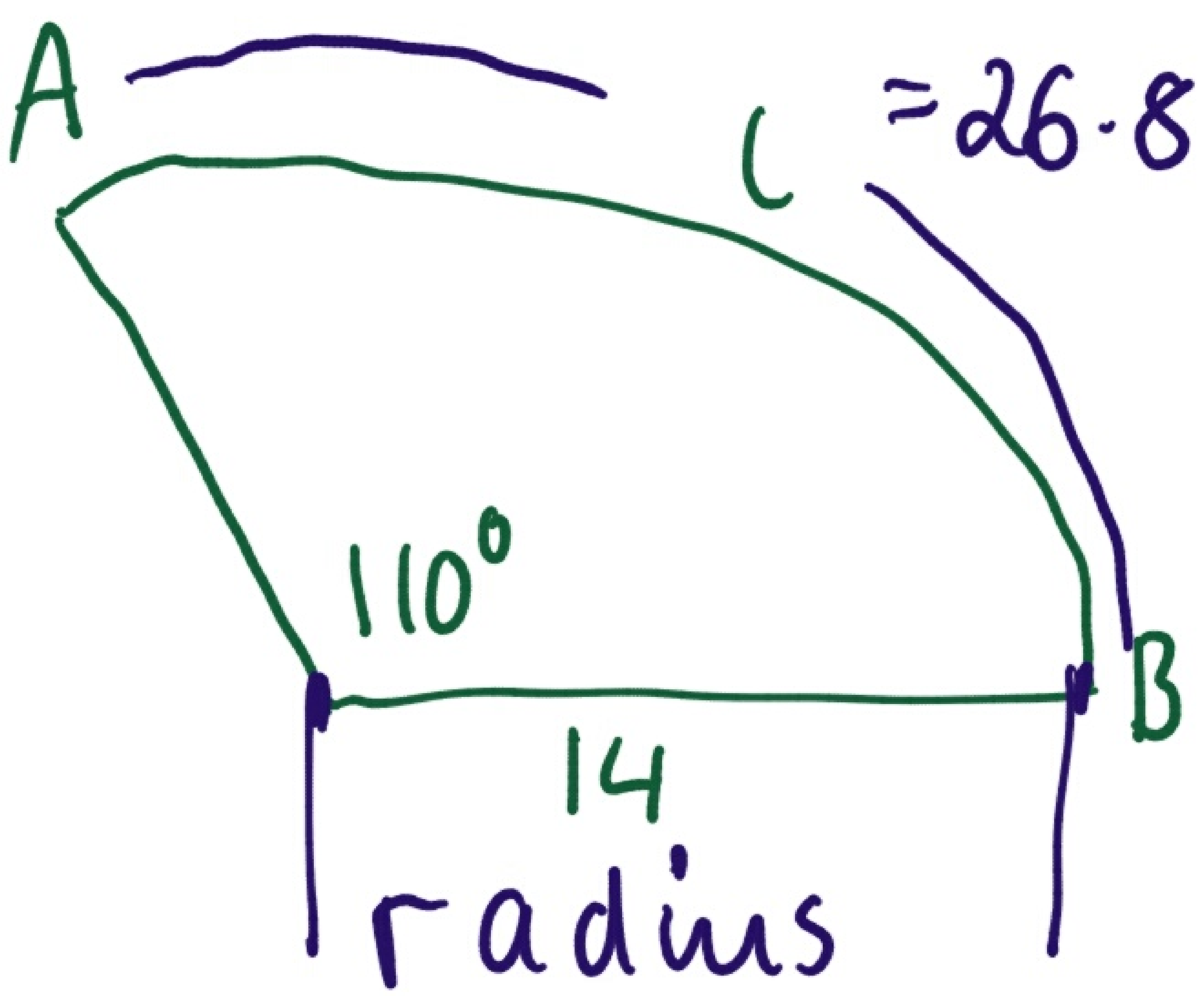
C/W
Pg 96
Q8, 10

① Put the centre point at the vertex





$\theta = 110°$



$C = |AB|$

$\theta = 110°$

$\pi = \frac{22}{7}$

$r = 14$

Formula Pg 9 log tables

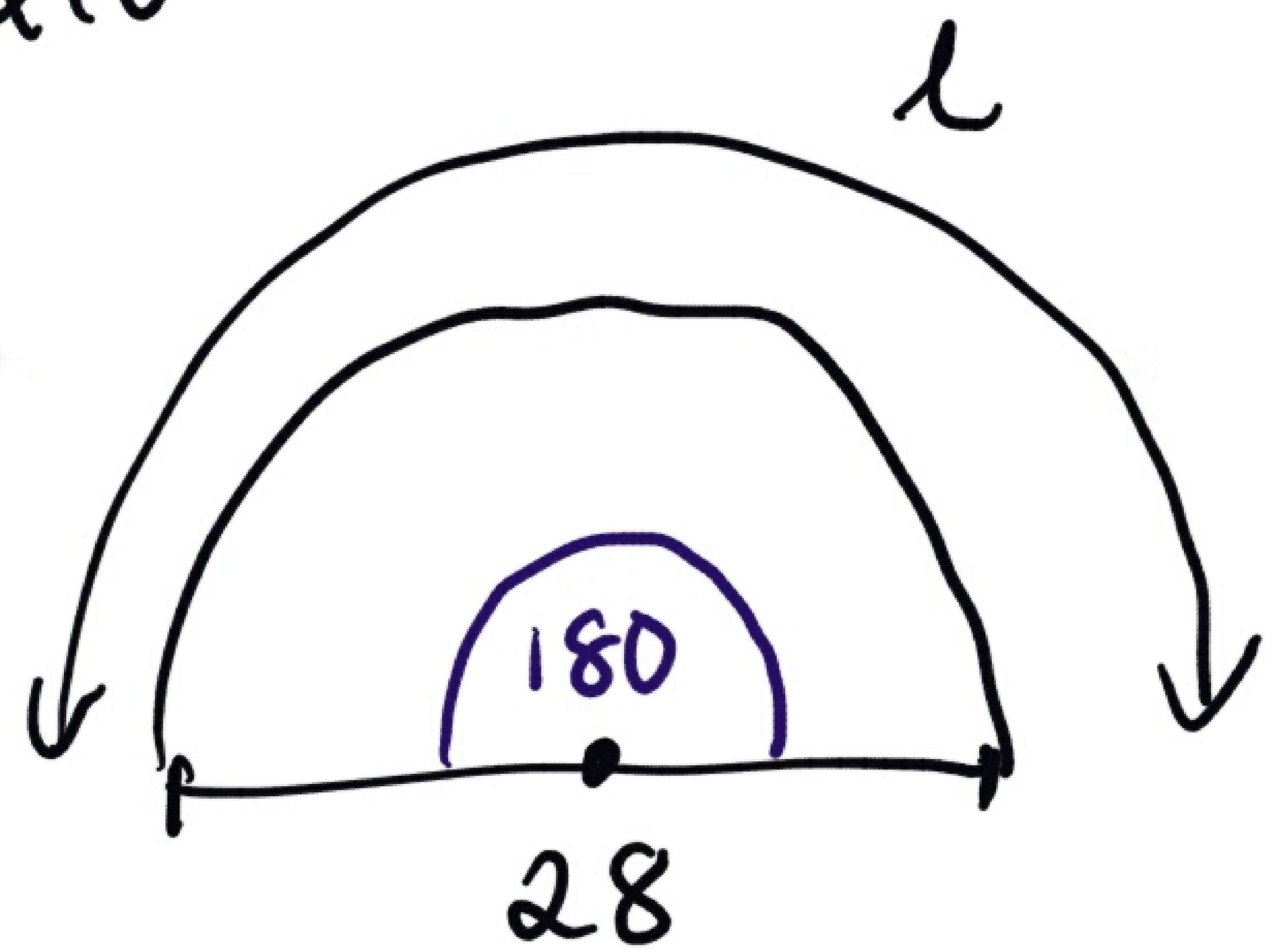
$$C = 2\pi r \frac{\theta}{360}$$

$$C = 2 \times \underbrace{\left(\frac{22}{7}\right) \times (14) \times \left(\frac{110}{360}\right)}_{\text{Calculator}}$$

$$C = 26.8$$

Q10 Pg 96.

1)



Diameter 28

radius $= \frac{28}{2} = \underline{14}$

$\pi = \frac{22}{7}$

$\theta = 180$

Formula

$$2\pi r\left(\frac{\theta}{360}\right)$$

Arc

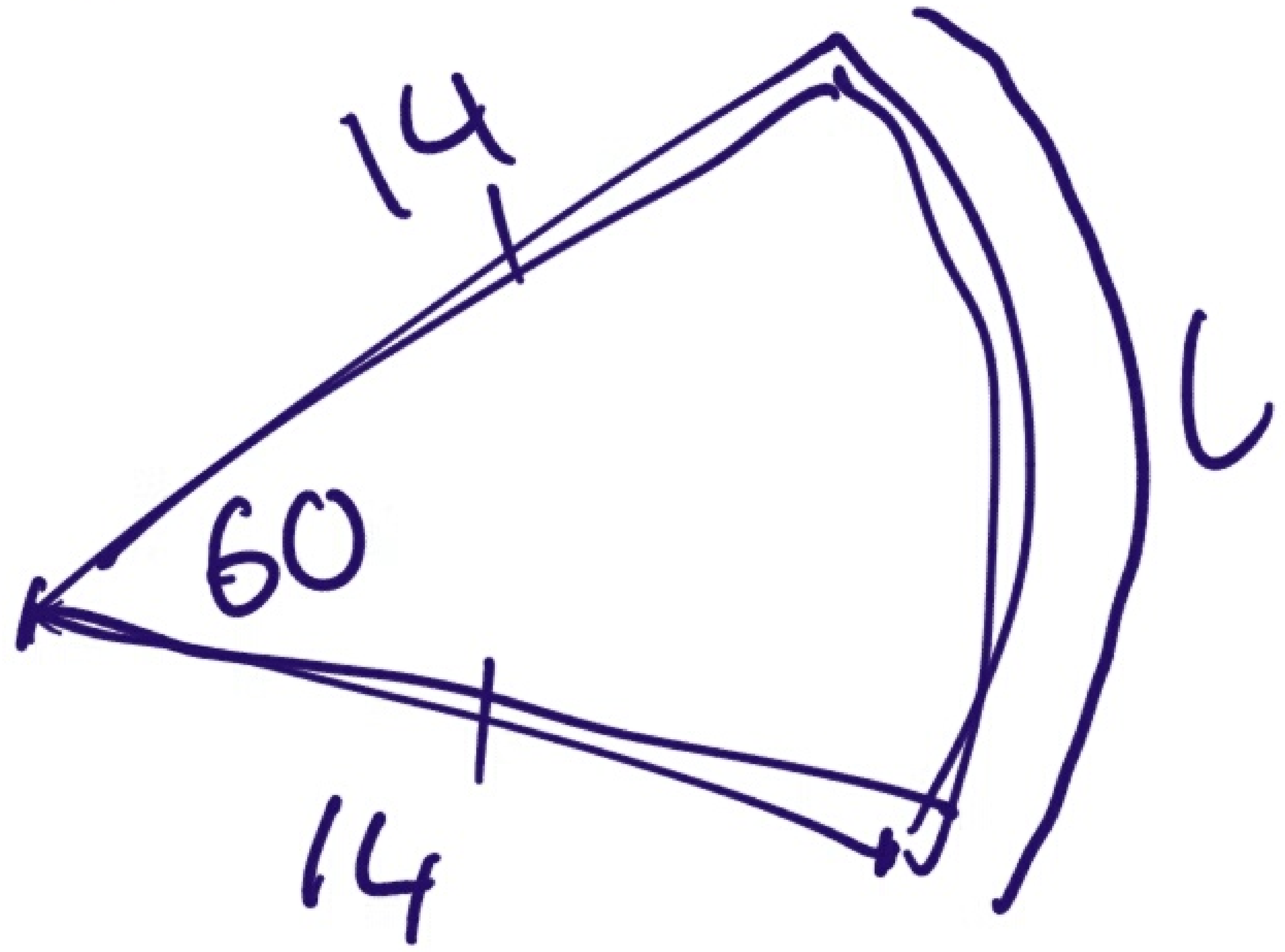
$$l = \underbrace{2 \times \frac{22}{7} \times 14 \times \left(\frac{180}{360}\right)}_{\text{Calculator}}$$

$l = 44$

Perimeter $44 + 28 = 72.$

Q10 Pg 96

(ii)



$\pi = \frac{22}{7}$

$r = 14$

$\theta = 60$

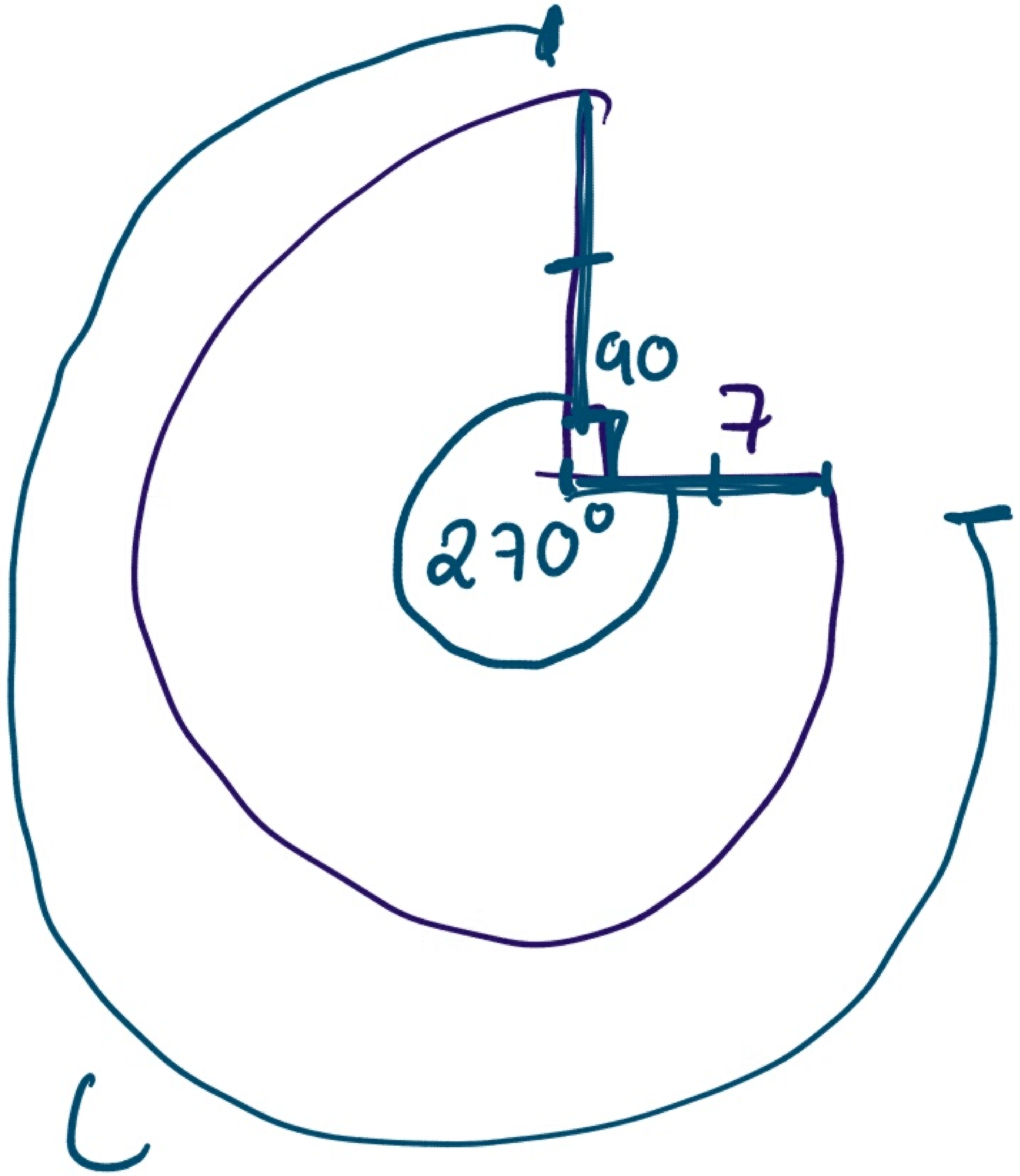
$l = 2 \pi r \left(\frac{\theta}{360}\right)$

$l = \underbrace{2 \times \left(\frac{22}{7}\right) \times (14) \times \left(\frac{60}{360}\right)}_{\text{Calculator}}$

$l = 14.6$

Perimeter $14.6 + 14 + 14$

$= 42.6$

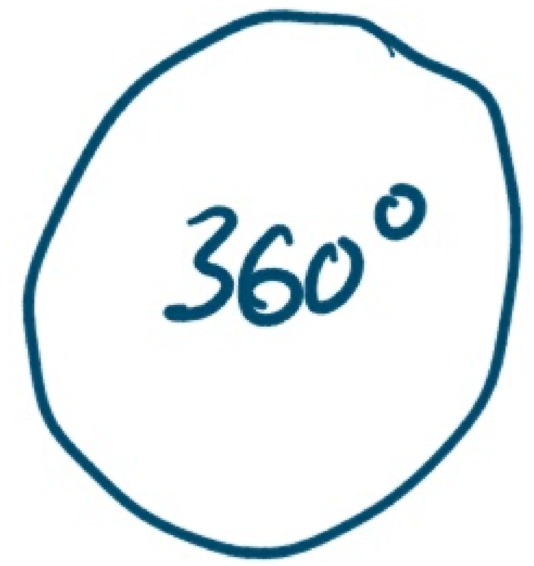


$\theta = 270$

$r = 7$

$\pi = \frac{22}{7}$

$$l = 2 \times \pi \times r \times \left(\frac{\theta}{360}\right)$$

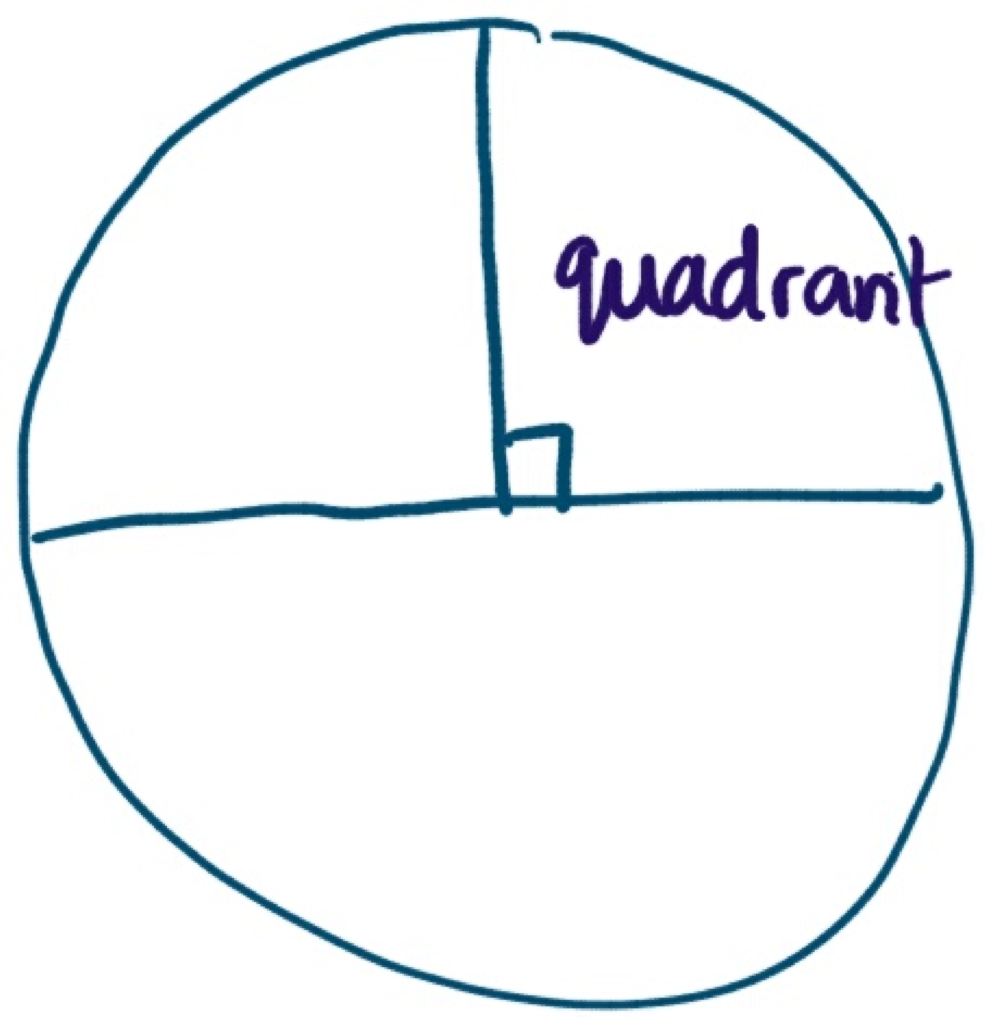


$$l = \underbrace{2 \times \left(\frac{22}{7}\right) \times (7) \times \left(\frac{270}{360}\right)}$$

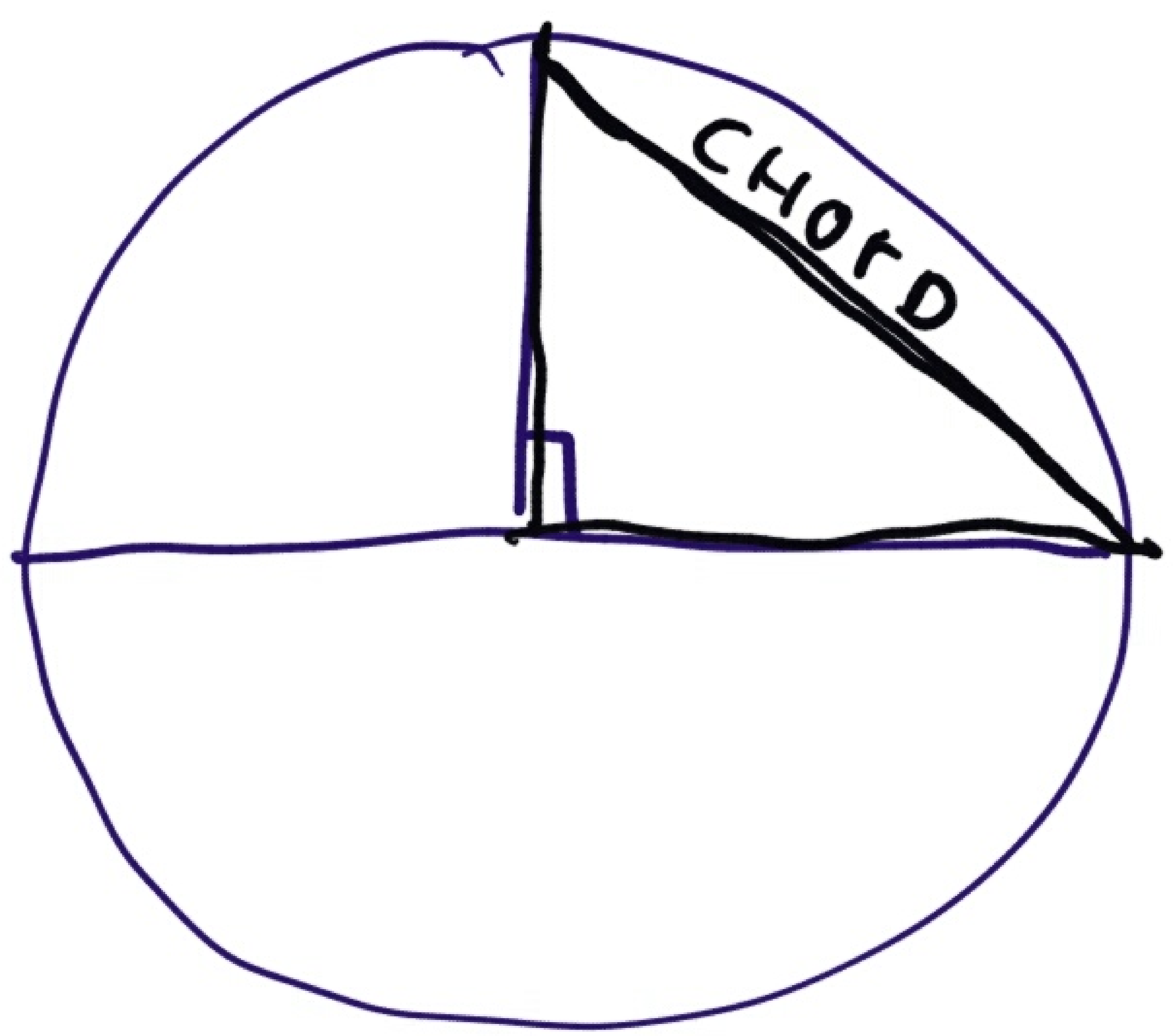
$$l = 33$$

Perimeter $33 + 7 + 7$

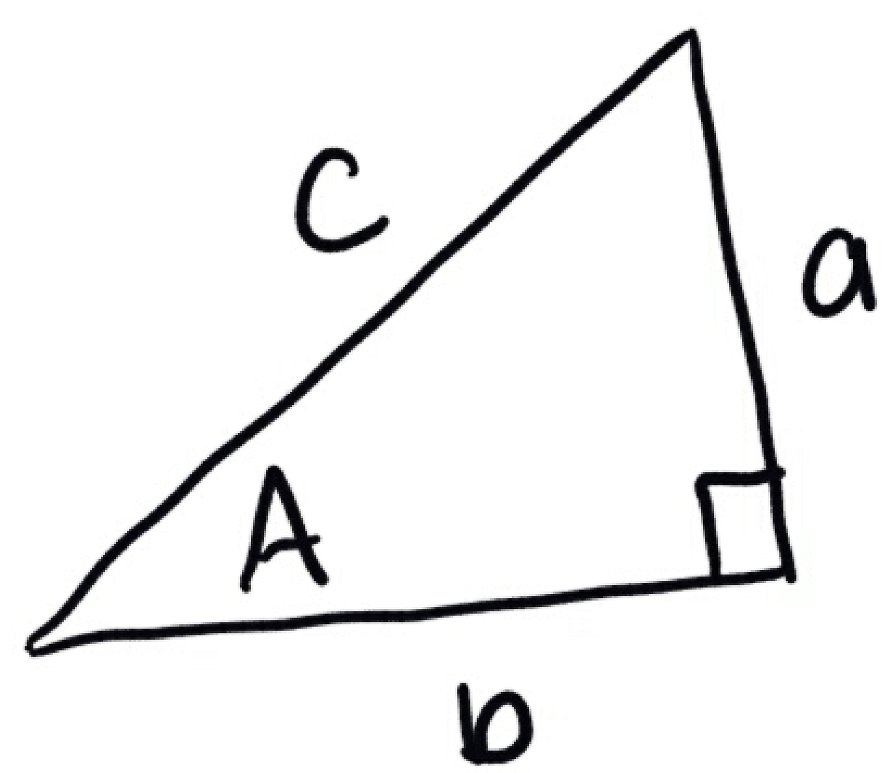
$= 47.$



∟ = 90° angle.



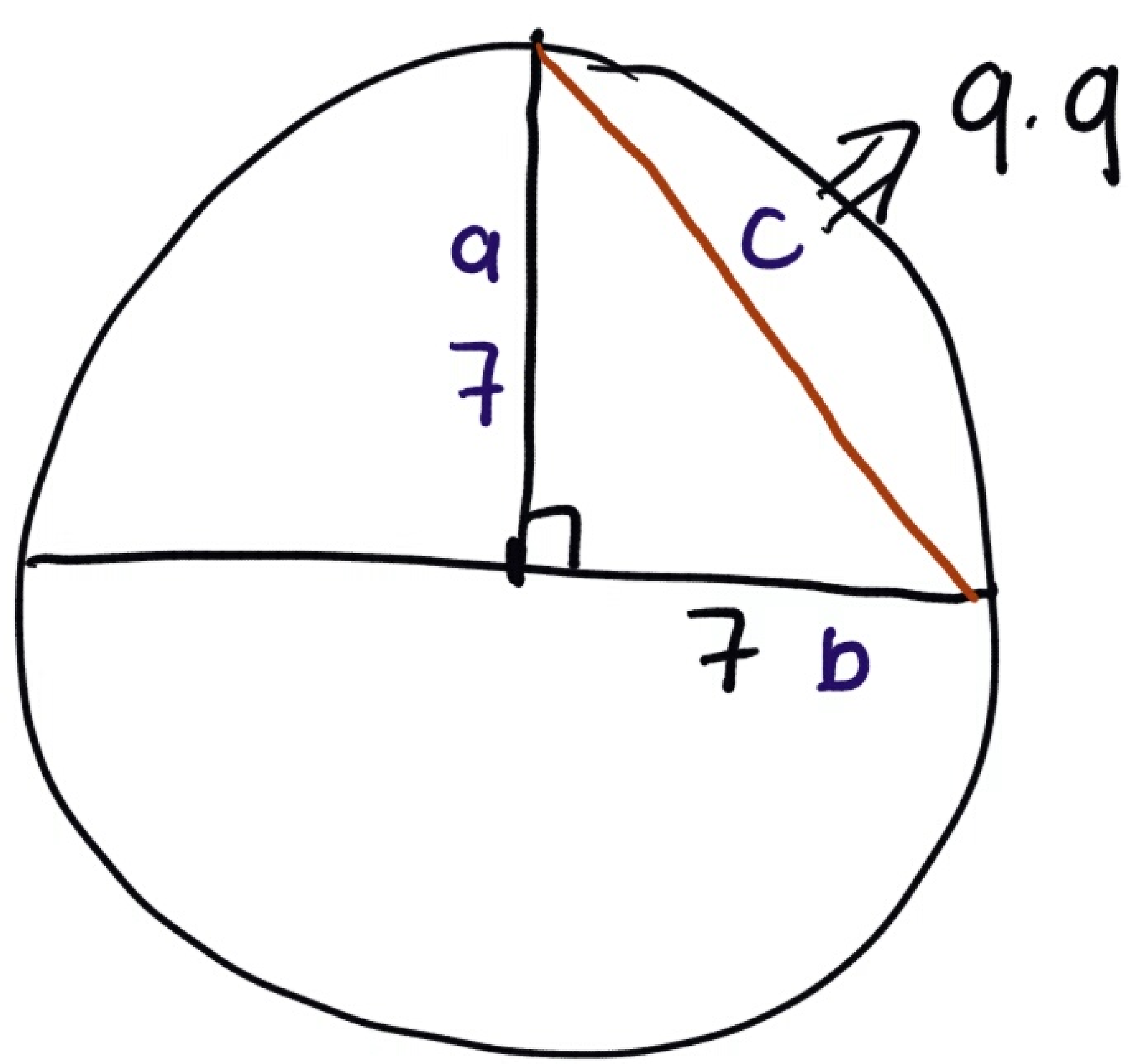
Pythagoras Theorem to find a chord.
Pg 16 Log tables



Theorem $c^2 = a^2 + b^2$

Note c is the longest side and is always opposite the right angle.

Use pythagoras theorem to find the length of the CHORD in the circle



① Label the sides a, b, c
c is opposite the right angle.

② Pythagoras theorem
Pg 16 log tables $c^2 = a^2 + b^2$

③ Sub the values into the formula.

$c^2 = 7^2 + 7^2$

$c^2 = 49 + 49$

$\sqrt{\ } \mid c^2 = 98 \mid \sqrt{\ }$

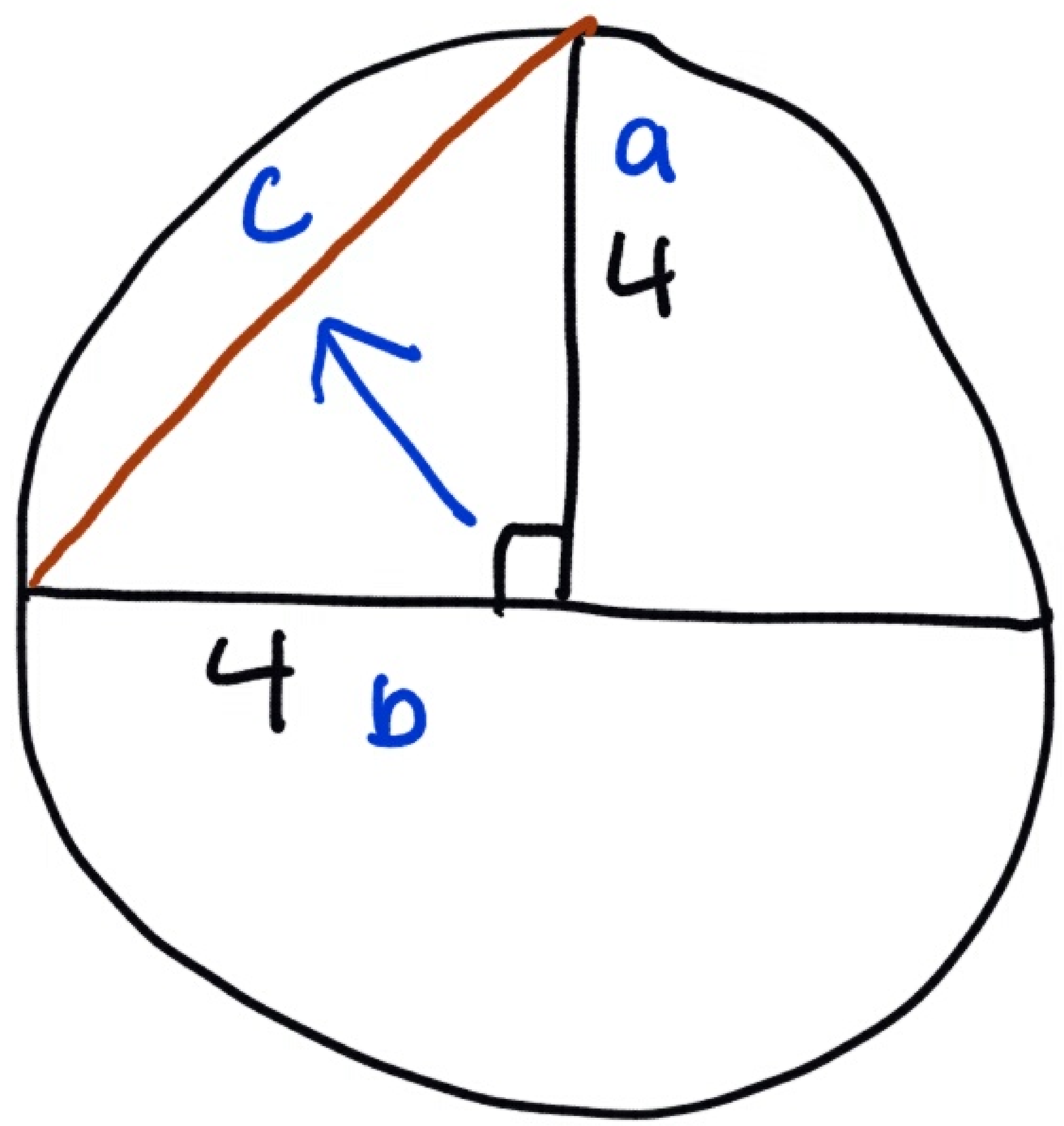
in surd form

$= \sqrt{98} = 7\sqrt{2}$

to 1 d.p [SD]

$9.8\underline{9} = 9.9$

Eg2 Find the length of the chord



$c^2 = a^2 + b^2$

$c^2 = 4^2 + 4^2$

$c^2 = 16 + 16$

$c^2 = 32$

In surd form

$c = \sqrt{32}$

$4\sqrt{2}$

calculator to 1 d.p

[SD] $\Rightarrow$ 5.65

Ans = 5.7

H/W

Pg 97

Q 18

Q19 Find |AB|