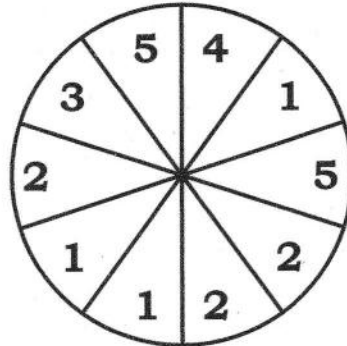


**HIGHER TIER
MINI PRACTICE EXAM 5**

**NON-CALCULATOR
20 MINUTES ALLOWED**

1.

Below is a fair spinner.



Andy is going to spin the spinner 50 times.

How many times would you expect him to land on an even number?

$$\text{Probability} = \frac{4}{10} \times 50 = \frac{200}{10} = \underline{20 \text{ times}}$$

(2)

2.

Work out $\sqrt{6\frac{3}{4} \div 5\frac{1}{3}}$. Give your answer as a mixed number.

$$\frac{27}{4} \div \frac{16}{3} = \frac{27}{4} \times \frac{3}{16} = \frac{81}{64} \quad \sqrt{\frac{81}{64}} = \frac{9}{8} = \left(1\frac{1}{8}\right)$$

(3)

3.

Work out $9^{3/2} \times 1000^{-1/3}$. Give your answer as a decimal.

$$9^{3/2} = 3^3 = 27$$

$$1000^{-1/3} = \frac{1}{\sqrt[3]{1000}} = \frac{1}{10}$$

$$27 \times \frac{1}{10} = \underline{2.7}$$

(3)

4.

Rationalise the denominator of $\frac{3+\sqrt{2}}{\sqrt{5}}$.

$$\frac{3+\sqrt{2}}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{5}(3+\sqrt{2})}{5} = \left(\frac{3\sqrt{5} + \sqrt{10}}{5}\right)$$

(3)

5.

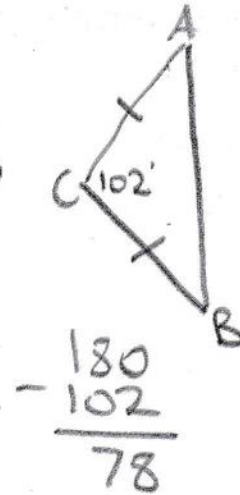
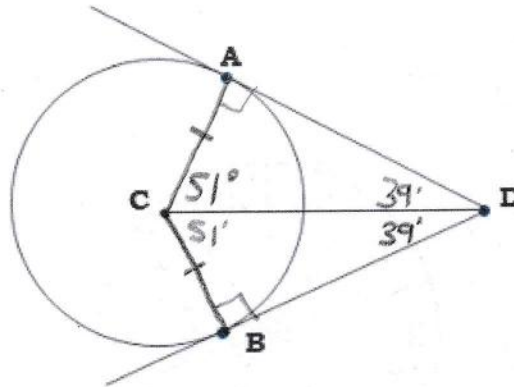
C is the centre of the circle.

A and B are points on the circumference of the circle.

Angle ADC = 39°.

Find the size of angle CAB.

$$180 - 90 - 39 = 51^\circ$$



$$78 \div 2 = 39^\circ$$

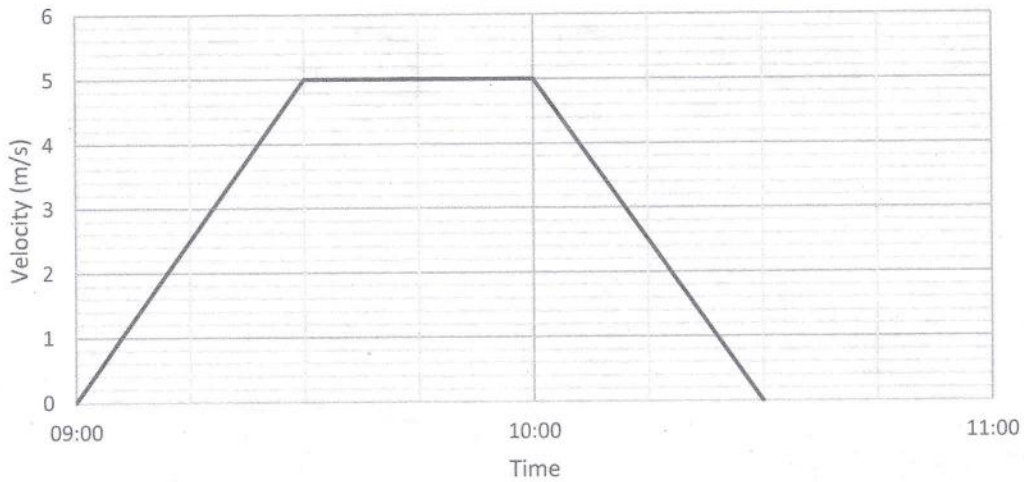
39°

(4)

6.

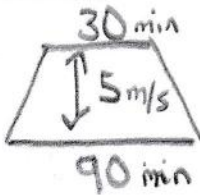
Brian went for a bike ride.

The velocity-time graph below shows his journey.



Brian says "I cycled 18 kilometres".

Is Brian correct?



$$\begin{aligned} \text{Area} &= \frac{30+90}{2} \times 5 = 300 \times 60 \\ &= 18,000 \text{ m} \\ &= 18 \text{ km} \end{aligned}$$

Brian is correct.

(5)