

**HIGHER TIER
MINI PRACTICE EXAM 5**



**CALCULATOR ALLOWED
20 MINUTES ALLOWED**

1.

A group of 90 students were asked whether they prefer Maths or English, and whether they prefer Geography or History.

40% of the students said they prefer English.

$\frac{5}{6}$ of the students who prefer Maths said they prefer Geography.

$\frac{2}{3}$ of the students who prefer English said they prefer History.

Complete the two-way table below.

	Maths	English	Total
Geography	45	12	57
History	9	24	33
Total	54	36	90

$$40\% \text{ of } 90 = 36$$

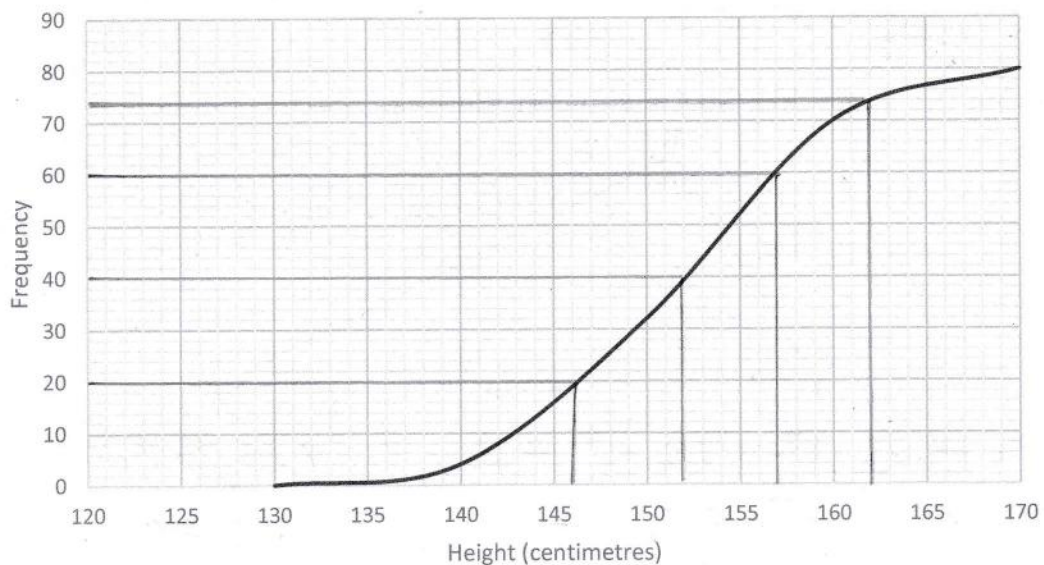
$$\frac{5}{6} \text{ of } 54 = 45$$

$$\frac{2}{3} \text{ of } 36 = 24$$

(4)

2.

The cumulative frequency graph below shows the heights of a group of 80 students.



(a) Use the cumulative frequency graph to estimate the median height.

$$152 \text{ cm}$$

(1)

(b) Use the cumulative frequency graph to estimate the interquartile range.

$$157 - 146 = \underline{11 \text{ cm}}$$

(2)

(c) Use the cumulative frequency graph to estimate how many of the students are more than 162 centimetres tall.

$$80 - 74 = 6$$

(1)

3.
 Craig bought a car for £1,600.
 The car depreciates at a rate of 26% per annum.
 After how many years will Craig's car be worth less than a quarter of what he paid for it?

$$\frac{1}{4} \text{ of } 1,600 = \pounds 400$$

$$1600 \times 0.74^5 = \pounds 355.04$$

5 years

(3)

4.

Solve $\frac{x+2}{3} + \frac{2x-1}{4} = 3$

$\times 3$

$$x+2 + \frac{3(2x-1)}{4} = 9$$

$\times 4$

$$4(x+2) + 3(2x-1) = 36$$

$$4x + 8 + 6x - 3 = 36$$

$$-5 \quad 10x + 5 = 36 \quad -5$$

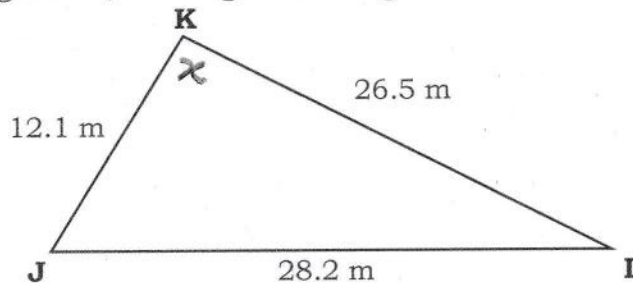
$$\div 10 \quad 10x = 31 \quad \div 10$$

$$\underline{x = 3.1}$$

(4)

5.

Find the size of the angle JKL, to 2 significant figures.



$$28.2^2 = 12.1^2 + 26.5^2 - 2 \times 12.1 \times 26.5 \times \cos x$$

$$795.24 = 848.66 - 641.3 \cos x$$

$$-53.42 = -641.3 \cos x$$

$$0.0832... = \cos x$$

$$x = \cos^{-1}(0.0832...) = 85.2217...$$

$$= \underline{85^\circ}$$

(5)