FOUNDATION TIER
MINI PRACTICE EXAM 12

NON-CALCULATOR
20 MINUTES ALLOWED

metatutor

1.
The stem and leaf diagram below shows the heights (in centimetres) of a group of 15 students.

Key: 13 | 6 = 136 centimetres

13	6 9
14	2 2 4 5 6 8
15	0 4 5 6 8 9
16	1

(a) What is the range?

161
− 136
025

25 cm

(1)

(b) What is the median?

148 cm

(1)

(c) What is the mode?

142 cm

(1)

(d) Another student, who is 135 centimetres tall, is added to the group.
Does this change any of the answers to parts (a), (b) and (c)?

Range – changes to 26 cm
Median – changes to 147 cm
Mode – does not change.

13	5 6 9
14	2 2 4 5 6 8
15	0 4 5 6 8 9
16	1

(3)

2.
(a) Factorise $x^2 + 7x + 10$

$(x+5)(x+2)$

(2)

(b) Solve $x^2 - 3x - 18 = 0$

$(x-6)(x+3) = 0$

$x = 6$ or -3

(3)

3.

Kirsty has a five-sided spinner, with sections labelled A, B, C, D and E.
She span the spinner 50 times.
Her results are summarised in the table below.

Section	A	B	C	D	E
Number of results	12	7	9	11	11
Relative frequency	12/50	7/50	9/50	11/50	11/50

(a) Complete the table.

12+9+11+11 = 43 50−43 = 7

(2)

(b) Kirsty says "Because more of my 50 spins landed on A than C, the section labelled A must be larger than the section labelled C".
Is Kirsty correct? Explain your answer.

No, not necessarily. It is only probability, it doesn't guarantee that it is larger.

(1)

(c) Do you think Kirsty's spinner is a fair spinner? Explain your answer.

Yes, because the number of results are very similar for each section.

(1)

4.

(a) Fully simplify the ratio 44 : 20 : 12.

11 : 5 : 3

(1)

(b) Express the ratio 9 : 1.5 in the ratio n : 1 , where n is an integer.

90 : 15
30 : 5
6 : 1

(1)

5.

Find the equation of the line that passes through the points (1, 1) and (4, 13).

$$\text{gradient} = \frac{13-1}{4-1} = \frac{12}{3} = 4$$

$y = 4x + c$

(1, 1): $1 = 4 \times 1 + c$

$1 = 4 + c$

$-4 \qquad -4$

$-3 = c$

$y = 4x - 3$

(4)