

Name: _____

Maths Genie Stage 11

Test A

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- **Calculators may not be used.**



Information

- The marks for each question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

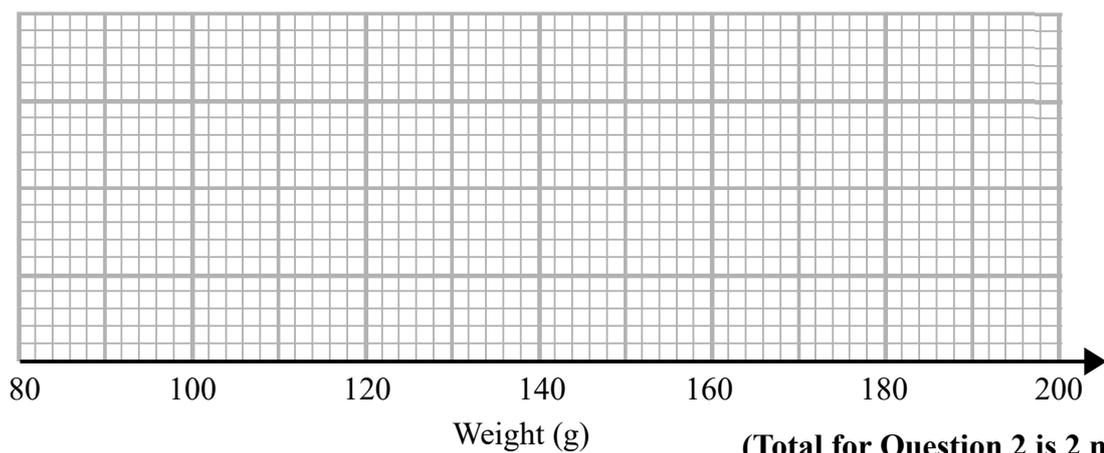
1 Expand and Simplify $(x - 3)(2x + 1)(x + 4)$

.....
(Total for Question 1 is 3 marks)

2 The table shows some information about the weights, in grams, of some potatoes.

Range	Lower Quartile	Median	Upper Quartile	Maximum
98	123	146	165	190

Draw a box plot for this information.

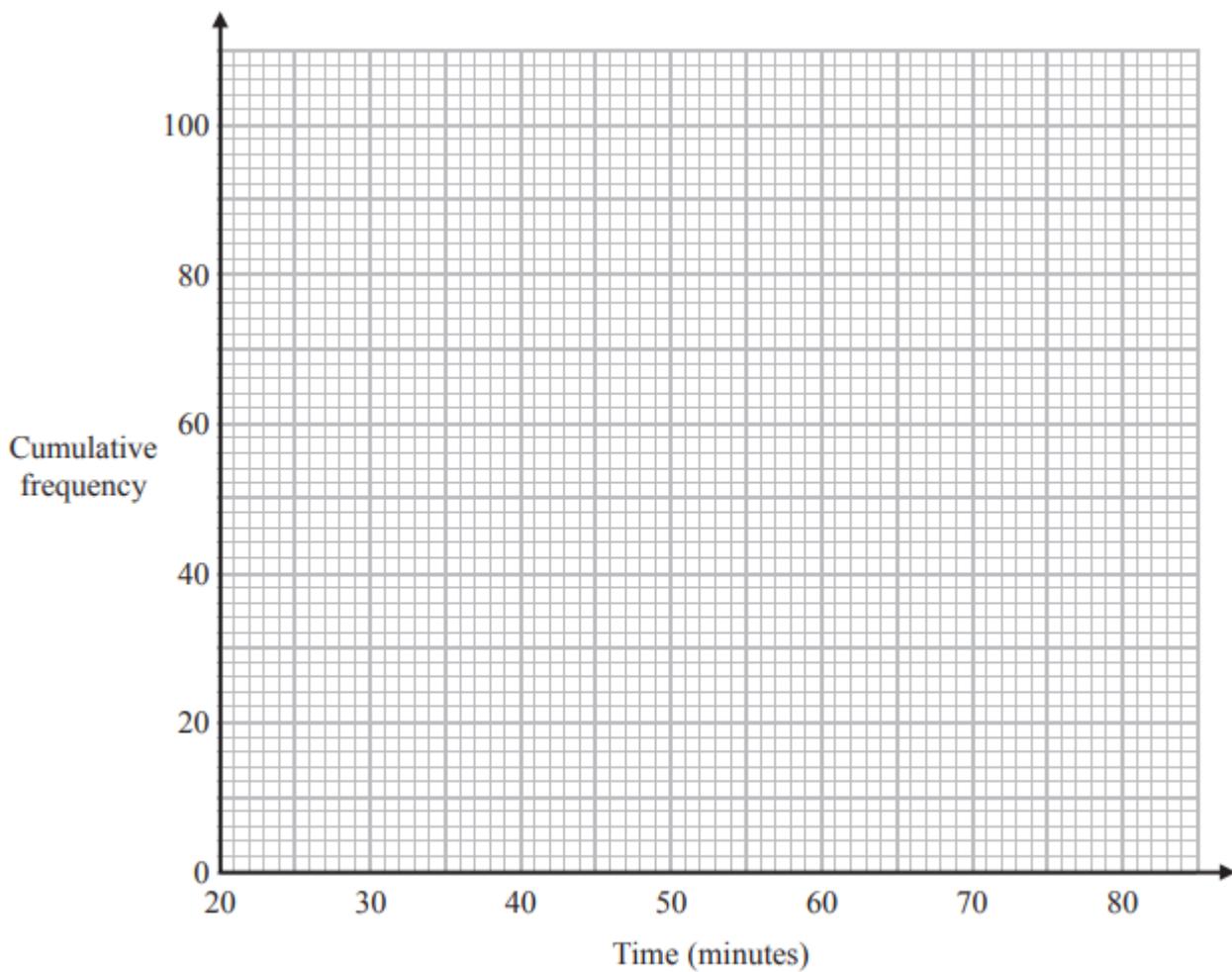


(Total for Question 2 is 2 marks)

3 The frequency table shows the time taken for 100 people to travel to an event.

Time (minutes)	Frequency
$20 < t \leq 30$	7
$30 < t \leq 40$	16
$40 < t \leq 50$	21
$50 < t \leq 60$	26
$60 < t \leq 70$	19
$70 < t \leq 80$	11

On the grid, plot a cumulative frequency graph for this information.



(Total for Question 3 is 2 marks)

4 Write $0.\dot{1}\dot{8}$ as a fraction in its simplest form.

.....
(Total for Question 4 is 2 marks)

5 Find the value of $125^{-\frac{2}{3}}$

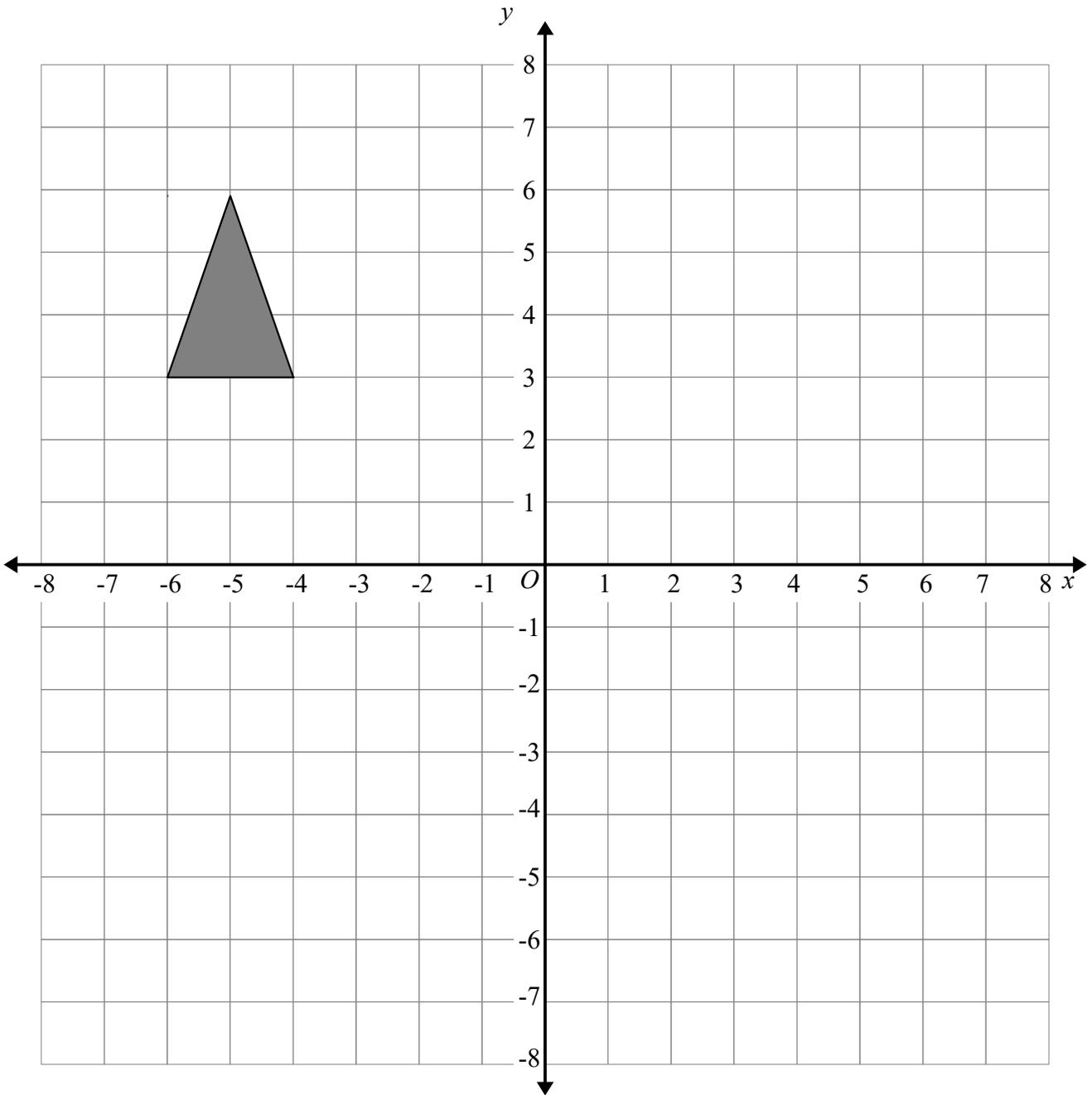
.....
(Total for Question 5 is 2 marks)

6 Simplify fully $\frac{(5 + 3\sqrt{2})(5 - 3\sqrt{2})}{\sqrt{7}}$

You must show all your working.

.....
(Total for Question 6 is 3 marks)

7



On the grid, enlarge the triangle by scale factor -2. centre (-2,2)

(Total for Question 7 is 2 marks)

- 8 Line A passes through the points $(-1, 2)$ and $(3, 8)$
Find the equation of the line parallel to A that passes through $(6, 2)$

.....
(Total for Question 8 is 3 marks)

- 9 Make x the subject of the formula $y = \frac{x + 5}{x - 8}$

.....
(Total for Question 9 is 3 marks)

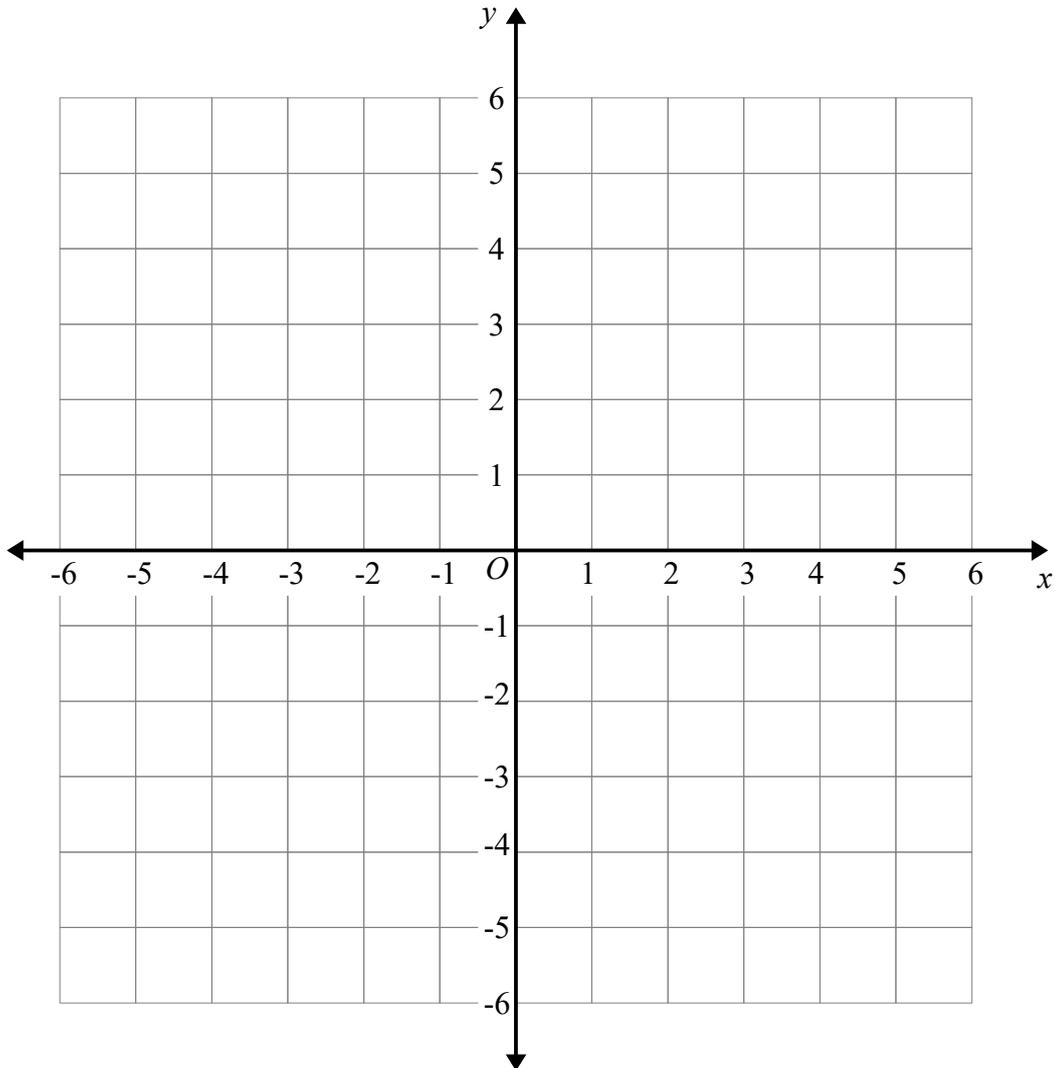
10 On the grid shade the region that satisfies all these inequalities

$$y < 3$$

$$y > -2x + 1$$

$$2y \geq 5x - 4$$

Label the region **R**.



(Total for Question 10 is 3 marks)