Knowing and understanding

MYP Year 3 | Original classroom assessment | 40 raw marks | Suggested time: 60 minutes

Name: _____ Class: _____ Date: _____

Instructions: Answer all eight questions. Show your method and give exact answers unless told otherwise. A calculator may be used throughout; write enough working to make your choices visible. Extra paper is allowed. Diagrams are not drawn to scale.

This assessment samples taught knowledge and its transfer to less familiar problems. Your teacher will use your working alongside the applicable Criterion A descriptors; the raw score is not an automatic level out of 8.

1. Number fluency [4 marks]

(a) Calculate 3/4 - 5/6. Give your answer as a fraction in simplest form. [2]
(b) Calculate $(-3)^2 - 2^3$. [2]

2. Algebra fluency [4 marks]

(a) Expand and simplify 3(2x - 5) - 2(x + 4). [2]
(b) Solve 5x - 7 = 2x + 11. [2]

© 2026 Full Marks Education | Classroom copying and internal sharing permitted

Percentages and coordinates

Questions 3-4 | Select a method and show how you apply it.

3. Percentage changes [5 marks]

(a) A fictional shop discounts a $240 item by 15%, then adds an 8% tax to the discounted price. Calculate the final price. [3]
(b) After a 20% increase, a different price is $144. Find the price before the increase. [2]

4. A straight line [5 marks]

(a) A straight line passes through P(-2, 7) and Q(4, -5). Find its equation in the form y = mx + c. [3]
(b) Find the x-coordinate of the point on this line with y-coordinate -9. [2]

© 2026 Full Marks Education | Classroom copying and internal sharing permitted

Geometry and data

Questions 5-6 | Choose suitable representations and check your answers.

5. A trapezium [5 marks]

A trapezium has parallel sides of lengths (x + 2) cm and (2x + 4) cm. Its perpendicular height is 6 cm and its area is 81 cm^2. Find x and the lengths of both parallel sides. Show how the area leads to your equation.

6. A missing data value [5 marks]

Five numbers are 4, 7, 9, 10 and k. Their mean is 9.
(a) Find k. [3]
(b) Find the median and range of the completed data set. [2]

© 2026 Full Marks Education | Classroom copying and internal sharing permitted

Transfer your understanding

Questions 7-8 | These presentations may be less familiar. Show your reasoning.

7. Two number machines [6 marks]

Machine A multiplies its input by 3 and subtracts 2. Machine B divides its input by 2 and adds 5.
(a) An input x goes through B first, then A. Write and simplify the output. [2]
(b) The same input x goes through A first, then B. Write and simplify the output. [2]
(c) Can the two routes ever produce the same output for the same x? Justify your answer for every possible x. [2]

8. A square border [6 marks]

A square tile has side length 12 cm. A smaller square is centred inside it, with corresponding sides parallel, leaving a border of constant width. The smaller square has area 64 cm^2.
(a) Find the width of the border. [3]
(b) Find the area of the border. [1]
(c) A student says, "The border is four corner squares, so its area is four times the square of its width." Explain why this does not give the whole border area. [2]

© 2026 Full Marks Education | Classroom copying and internal sharing permitted