JRA Tutors
Private tuition and small online Study Pods

Substitution

Grade 3 topic · Foundation and Higher · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Foundation students: aim for Questions 1–15 (30 marks) and have a go at the rest. Higher students: complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 50 marks.

Warm-up

1 Work out the value of $8x + 5$ when $x = 4$. **[1 mark]**

Answer _____

2 Work out the value of x^2 when $x = 3$. **[1 mark]**

Answer _____

3 Work out the value of $6x + 7$ when $x = 8$. **[1 mark]**

Answer _____

4 Work out the value of x^2 when $x = 7$. **[1 mark]**

Answer _____

5 Work out the value of 4x + 2 when x = 8. **[1 mark]**

Answer _____

Core

6 Work out 5x + 1 when x = -2. **[2 marks]**

Answer _____

7 Work out 16 − 5x when x = -6. **[2 marks]**

Answer _____

8 Work out x^2 + 4x when x = -5. **[2 marks]**

Answer _____

9 Work out $8x^2$ when x = -2. **[2 marks]**

Answer _____

10 Work out $4x - 3$ when x = -4. **[2 marks]**

Answer _____

Stretch

11 Work out $5a^2 - 5b$ when a = -3 and b = 7. **[3 marks]**

Answer _____

12 Work out ab + 7b when a = -4 and b = 2. **[3 marks]**

Answer _____

13 Work out $a^2 + b^2$ when a = -4 and b = 6. **[3 marks]**

Answer _____

14 Work out $(a + b)^2$ when a = -4 and b = 7. **[3 marks]**

Answer _____

15 Work out 6a − 6b when a = -4 and b = -4. **[3 marks]**

Answer _____

Challenge

16 v = u + at. Work out v when u = 8, a = 4 and t = 2. **[4 marks]**

Answer _____

17 $s = ut + \frac{1}{2}at^2$. Work out s when u = 7, a = 2 and t = 7. **[4 marks]**

Answer _____

18 C = 5/9(F − 32). Work out C when F = 113. **[4 marks]**

Answer _____

19 $E = \frac{1}{2}mv^2$. Work out E when m = 8 and v = 3. **[4 marks]**

Answer _____

20 $y = x^2 - 7x + 5$. Work out y when $x = -5$. **[4 marks]**

Answer _____