



## 4.6F Forming and Solving Equations: Foundation Tier Practice

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 50 minutes

Total Marks

Name: \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Answer ALL questions. Show all your working.**

- 1** Write down an equation for the statement: "Seven more than a number  $x$  is 12" and then work out the value of  $x$ .

(a) Write an equation for the statement. (1)

.....  
(Total for Question 1 is 1 mark)

- 2** Solve the equation  $3x = 15$ . Show your working.

(a) Find  $x$ . (1)

.....  
(Total for Question 2 is 1 mark)

- 3** Solve the equation  $x - 4 = 9$ . Give your answer.

(a) Find  $x$ . (1)

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

- 4** The sum of a number  $y$  and 8 is 20. Form an equation and solve for  $y$ .

(a) Form an equation from the statement. (1)

(b) Solve the equation for  $y$ . (1)

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

**5** Amelia thinks of a number  $n$ . She doubles it and then adds 5 to make 17. Form an equation and find  $n$ .

**(a)** Form an equation to represent the situation. (1)

**(b)** Solve the equation and give  $n$ . (2)

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(Total for Question 5 is 3 marks)

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**6** Form an equation and solve. "Five times a number  $p$  minus 7 equals 18."

**(a)** Write an equation for the statement. (1)

**(b)** Solve the equation for  $p$ . (2)

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(Total for Question 6 is 3 marks)

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**7** Solve the equation  $4x + 3 = 19$ . Show steps clearly.

**(a)** Find  $x$ . (2)

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(Total for Question 7 is 2 marks)

**8** Form and solve an equation. "Sarah has £2.50. She buys a drink costing  $d$  pounds and has £1.10 left. How much did the drink cost?"

(a) Form an equation in  $d$  to represent the situation. (1)

(b) Solve the equation and give the cost of the drink. (3)

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(Total for Question 8 is 4 marks)

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**9** A rectangle has length equal to 3 more than twice its width. The perimeter of the rectangle is 60 cm. Form an equation and find the width and length.

(a) Let the width be  $w$  cm. Form an equation using  $w$  for the perimeter. (1)

(b) Solve your equation to find the width  $w$ . (3)

(c) Find the length. (1)

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(Total for Question 9 is 5 marks)

**10** A toy has an original price of  $x$  pounds. It is reduced by 20% in a sale and then a delivery charge of £1.50 is added. The final price paid is £7.50. Form an equation and work out the original price  $x$ .

(a) Write an equation in  $x$  to represent the sale reduction and delivery charge leading to the final price. (2)

(b) Solve your equation to find  $x$ . Show each step. (6)

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(Total for Question 10 is 8 marks)

## Mark scheme · 4.6F Forming and Solving Equations: Foundation Tier Practice

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### Question 1

- (a) **B1**  $x + 7 = 12$  cao
- (a) **Answer:**  $x + 7 = 12$

### Question 2

- (a) **B1**  $x = 5$  cao
- (a) **Answer:** 5

### Question 3

- (a) **B1**  $x = 13$  cao
- (a) **Answer:** 13

### Question 4

- (a) **M1** equation formed, e.g.  $y + 8 = 20$  oe
- (a) **Answer:**  $y + 8 = 20$
- (b) **A1**  $y = 12$  cao
- (b) **Answer:** 12

### Question 5

- (a) **M1** equation formed, e.g.  $2n + 5 = 17$  oe
- (a) **Answer:**  $2n + 5 = 17$
- (b) **M1** subtract 5 then divide by 2 seen ( $2n = 12 \rightarrow n = 6$ ) ft
- (b) **A1**  $n = 6$  cao
- (b) **Answer:** 6

### Question 6

- (a) **M1** equation formed, e.g.  $5p - 7 = 18$  oe
- (a) **Answer:**  $5p - 7 = 18$
- (b) **M1** add 7 then divide by 5 ( $5p = 25 \rightarrow p = 5$ ) ft
- (b) **A1**  $p = 5$  cao
- (b) **Answer:** 5

### Question 7

- (a) **M1** subtract 3 then divide by 4 seen ( $4x = 16 \rightarrow x = 4$ ) ft
- (a) **A1**  $x = 4$  cao
- (a) **Answer:** 4

### Question 8

- (a) **M1** equation formed, e.g.  $2.50 - d = 1.10$  oe
- (a) **Answer:**  $2.50 - d = 1.10$
- (b) **M1** subtract 1.10 from both sides or rearrange ( $2.50 - 1.10 = d$  seen)
- (b) **M1** calculate correctly  $2.50 - 1.10 = 1.40$
- (b) **A1**  $d = 1.40$  cao
- (b) **Answer:** £1.40

### Question 9

- (a) **M1** equation formed, e.g.  $2(2w + 3) + w = 60$  oe
- (a) **Answer:  $2((2w + 3) + w) = 60$**
- (b) **M1** substitute and simplify to linear form, e.g.  $6w + 6 = 60$  or equivalent
- (b) **M1** isolate  $w$  correctly, e.g.  $6w = 54$  seen
- (b) **A1**  $w = 9$  cm cao
- (b) **Answer: 9 cm**
- (c) **B1** length  $= 2w + 3 = 21$  cm cao
- (c) **Answer: 21 cm**

### Question 10

- (a) **M1** recognise 20% reduction gives  $0.8x$  or  $(1 - 0.2)x$
- (a) **A1** equation  $0.8x + 1.50 = 7.50$  cao
- (a) **Answer:  $0.8x + 1.50 = 7.50$**
- (b) **M1** subtract 1.50 from both sides,  $0.8x = 6.00$  seen
- (b) **M1** divide both sides by 0.8 seen
- (b) **M1** correct intermediate calculation  $6.00 / 0.8 = 7.5$  or equivalent
- (b) **A1**  $x = 7.50$  cao
- (b) **C1** clear presentation of method leading to correct answer
- (b) **SC1** award if answer 7.5 is given with correct working shown in different equivalent form
- (b) **Answer: £7.50**