FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

A21: Forming equations

Translate situations into expressions, formulae and equations; solve them

20 marks · 25 minutes · Non-calculator

1) Pens cost p pence each and rulers cost r pence each. Write an expression for the cost of 4 pens and 3 rulers.

..... pence

[Question 1: 1 marks]

2) A rectangle is $(2x + 3)$ cm long and $(x - 1)$ cm wide.

(a) Write an expression for its perimeter. Simplify your answer.

..... cm

(2)

(b) The perimeter is 40 cm. Form and solve an equation to find x.

.....

(2)

[Question 2: 4 marks]

3) Ali is x years old. Ben is 3 years older than Ali. Cara is twice as old as Ben. Their ages add up to 61. Form an equation and solve it to find Ali's age.

..... years

[Question 3: 3 marks]

---

4) The angles of a triangle are $x°$, $(2x + 10)°$ and $(3x - 40)°$. Find x.

.....

[Question 4: 2 marks]

---

5) Adult cinema tickets cost £a and child tickets cost £c. Write an expression for the cost of 2 adult and 3 child tickets.

£ .....

[Question 5: 1 marks]

---

6) A square has side length $(x + 2)$ cm. Write a formula for its area, A cm^2.

.....

[Question 6: 1 marks]

---

7) I think of a number, multiply it by 4 and subtract 7. The answer is 29. Form and solve an equation to find my number.

.....

[Question 7: 2 marks]

---

8) A rectangle is $(x + 5)$ cm long and 3 cm wide. Its area is 36 cm^2. Find x.

.....

[Question 8: 2 marks]

9) Jo has £x. Sam has £12 more than Jo. Together they have £68. How much does Jo have?

£ .....

[Question 9: 2 marks]

10) An isosceles triangle has two angles of $x°$ and one angle of $(2x + 20)°$. Find x.

.....

[Question 10: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	$4p + 3r$	B1.
2	(a) $6x + 4$ (b) 6	(a) $2(2x + 3) + 2(x - 1)$ (M1); A1. (b) $6x + 4 = 40$ (M1); A1.
3	13	$x + (x + 3) + 2(x + 3) = 61$ (M1); $4x + 9 = 61$ (M1); A1.
4	35	$6x - 30 = 180$ (M1); A1.
5	$2a + 3c$	B1.
6	$A = (x + 2)^2$	B1 (accept expanded).
7	9	$4n - 7 = 29$ (M1); A1.
8	7	$3(x + 5) = 36$ (M1); A1.
9	£28	$2x + 12 = 68$ (M1); A1.
10	40	$4x + 20 = 180$ (M1); A1.