FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

A21: Forming and solving equations

Form equations from situations and interpret the solutions

20 marks · 25 minutes · Non-calculator

1) Tom is x years old. His sister is 3 years older. Their ages total 29. Show that $x = 13$

[Question 1: 2 marks]

2) A rectangle's length is 3 cm more than its width. Its perimeter is 34 cm. Show that its width is 7 cm.

[Question 2: 2 marks]

3) Explain why "5 more than n" is written $n + 5$ and not $5n$.

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[Question 3: 1 marks]

4) The angles of a triangle are $x°$, $2x°$ and $3x°$. Show that it is a right-angled triangle.

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[Question 4: 3 marks]

5) I think of a number, multiply it by 3 and add 4. The answer is 31. Show that my number is 9

[Question 5: 2 marks]

6) Ben buys p pens at 45p each and a ruler for 80p. He pays £3.95. Show that $p = 7$

[Question 6: 2 marks]

7) An isosceles triangle has sides $(x + 3)$ cm, $(x + 3)$ cm and $(2x - 1)$ cm. Its perimeter is 29 cm. Show that $x = 6$. Is the triangle equilateral? Explain.

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[Question 7: 3 marks]

8) Three consecutive integers add up to 87. Show that they are 28, 29 and 30

[Question 8: 2 marks]

9) Explain why the cost of 4 apples at a pence and 3 pears at p pence is $4a + 3p$ pence.

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[Question 9: 1 marks]

10) A rectangle is $(x + 2)$ cm by $(x - 2)$ cm and has area 32 cm^2. Show that $x = 6$

[Question 10: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	Shown	$2x + 3 = 29$ (M1); C1.
2	Shown	$4w + 6 = 34$ (M1); C1.
3	Explanation	$5n$ means 5 times n (C1).
4	Shown	$6x = 180$ (M1); $x = 30$ (A1); largest angle 90° (C1).
5	Shown	$3n + 4 = 31$ (M1); C1.
6	Shown	$45p + 80 = 395$ (M1); C1.
7	Shown; no	$4x + 5 = 29$ (M1); sides 9, 9, 11 (A1); not all equal (C1).
8	Shown	$3n + 3 = 87$ (M1); C1.
9	Explanation	4 lots of a plus 3 lots of p (C1).
10	Shown	$x^2 - 4 = 32$ (M1); $x = 6$ as length positive (C1).