FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

A21: Forming and solving equations

Solve problems by translating situations into equations

20 marks · 25 minutes · Non-calculator

1) A rectangle $(x + 3)$ cm by $(x - 2)$ cm has an area 6 cm^2 more than a square of side x cm. Find x.

.....

[Question 1: 3 marks]

2) Mum is 4 times as old as Jo. In 10 years she will be twice as old as Jo. How old is Jo now?

.....

[Question 2: 3 marks]

3) An adult ticket costs twice as much as a child ticket. 3 adult and 4 child tickets cost £60. Find the cost of each ticket.

.....

[Question 3: 3 marks]

4) In a triangle, the second angle is 20° more than the first and the third angle is twice the first. Find all three angles.

.....

[Question 4: 3 marks]

5) A train makes a 240 km journey. If its average speed were 20 km/h faster, the journey would take 1 hour less. Find its average speed.

..... km/h

[Question 5: 5 marks]

6) Three consecutive even numbers add up to 78. Find them.

.....

[Question 6: 3 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	12	$x^2 + x - 6 = x^2 + 6$ (P1, P1); A1.
2	5	$4j + 10 = 2(j + 10)$ (P1, P1); A1.
3	Child £6, adult £12	$6c + 4c = 60$ (P1, P1); A1.
4	40, 60, 80	$4x + 20 = 180$ (P1, P1); A1.
5	60	$\frac{240}{v} - \frac{240}{v+20} = 1$ (P1, P1); $v^2 + 20v - 4800 = 0$ (P1); $(v+80)(v-60)$ (P1); 60 (A1).
6	24, 26, 28	$3n + 6 = 78$ (P1, P1); A1.