FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

N4: Factors, multiples and primes

Solve problems with HCF, LCM and prime factors

20 marks · 25 minutes · Non-calculator

1) Bus A leaves every 12 minutes and bus B every 20 minutes. They both leave at 8:00 am. How many more times do they leave together before 12 noon?

.....

[Question 1: 3 marks]

2) A floor 84 cm by 126 cm is covered with identical square tiles with no cutting. The tiles are as large as possible. How many tiles are used?

.....

[Question 2: 3 marks]

3) Find the smallest number that is divisible by both 6 and 8 and is also 1 more than a multiple of 5

.....

[Question 3: 3 marks]

4) $A = 2^3 \times 3 \times 5^2$. Find the smallest whole number n such that $A \times n$ is a square number.

.....

[Question 4: 2 marks]

---

5) Sweets come in packs of 18 and packs of 24. Ali wants exactly the same number of sweets from each type. What is the smallest total number of packs he can buy?

.....

[Question 5: 3 marks]

---

6) Two prime numbers multiply to give 221. Find them.

.....

[Question 6: 2 marks]

---

7) Three lights flash every 6, 8 and 10 seconds. They flash together at the start. How many more times do they flash together in the next 10 minutes?

.....

[Question 7: 2 marks]

8) The HCF of two numbers is 6 and their LCM is 72. One of the numbers is 18. Find the other number.

.....

[Question 8: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	3	LCM 60 (P1); 9:00, 10:00, 11:00 (P1); 3 (A1).
2	6	HCF 42 (P1); 2 × 3 tiles (P1); 6 (A1).
3	96	LCM 24 (P1); multiples 24, 48, 72, 96 checked (P1); 96 (A1).
4	6	$2^3 \times 3$ needs another 2 and 3 (P1); A1.
5	7	LCM 72 (P1); 4 packs and 3 packs (P1); 7 (A1).
6	13 and 17	Tries primes (P1); A1.
7	5	LCM 120 (P1); 600 ÷ 120 (A1).
8	24	HCF × LCM = product (P1); 432 ÷ 18 (A1).