Test - Factors, multiples, primes and HCF/LCM

Year: Year 10 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – Factors and primes

Non-calculator.

a. Write down all the factors of 30. (2 marks)
b. Write down all the prime numbers between 10 and 30. (2 marks)

Question 2 (4 marks)

Question 2 – Prime factors, HCF and LCM

Non-calculator.

a. Write 420 as a product of its prime factors. (2 marks)
b. Find the HCF and the LCM of 420 and 504. (2 marks)

Question 3 (4 marks)

Question 3 – Problem: the bus timetable

Bus 11 leaves the depot every 20 minutes. Bus 12 leaves every 30 minutes. They both leave at 07:00.

a. At what time do they next leave together? (2 marks)
b. How many times between 07:00 and 10:00 (including 07:00) do the two buses leave at the same time? (2 marks)

Question 4 (4 marks)

Question 4 – Problem: the tiled wall

A rectangular wall measures 270 cm by 180 cm. It is covered with identical square tiles

with no gaps and no cutting.

a. Find the side of the largest square tile that can be used. (2 marks)
b. How many of these tiles are needed? (2 marks)

Question 5 (4 marks)

Question 5 – Higher: counting and proof

Higher tier.

a. A PIN has 4 digits chosen from 0 to 9. Digits can be repeated. How many PINs are possible? (1 mark)
b. How many PINs have 4 different digits? (1 mark)
c. Prove that the sum of any three consecutive whole numbers is a multiple of 3. (2 marks)