



KS2.M-Y5N4 Factors, Multiples, Primes and Squares

Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Write down two factors of 36 that are greater than 6.

(1)

- 2** Is 29 a prime number? Explain your answer in one sentence.

(1)

- 3** Complete the sequence with the next two multiples of 7: 7, 14, 21, 28, ...

(1)

- 4** Circle the two square numbers from this list: 20, 25, 30, 36.

(1)

- 5** List all the factors of 30.

(2)

- 6** What is the smallest prime number greater than 50?

(1)

7 Hannah says 91 is prime. Is she correct? Explain your answer.

(2)

8 Find the highest common factor (HCF) of 24 and 36. Show a method.

(2)

9 Write down two consecutive square numbers greater than 9. Give both numbers.

(1)

10 Amir multiplies a number by 9 and gets 81. What was his original number? Show your working.

(2)

11 Which number between 40 and 60 has exactly three factors? Write the number and list its factors.

(2)

12 Sara writes down every multiple of 8 up to and including 80. How many numbers does she write? Show your working.

(3)

13 Is 1 a prime number? Tick yes or no and give a short reason.

☐ Yes

☐ No

14 Work out the least common multiple (LCM) of 12 and 15. Show prime factors or list multiples to support your answer.

(3)

15 Find all the prime numbers between 20 and 40. Show how you checked them if you need to.

(3)

16 Is 121 a prime number? Explain your answer.

(2)

17 Find two square numbers that are less than or equal to 100 and add to 181. Explain how you know you have found them.

(2)

- 18** A teacher asks pupils to write every whole number from 1 to 48 inclusive. Circle the numbers that are multiples of both 3 and 4. How many numbers should be circled? Show how you worked this out.

(3)

Mark scheme · KS2.M-Y5N4 Factors, Multiples, Primes and Squares

Question 1

- **B1** Any two correct factors greater than 6, for example 9 and 12 cao
- Answer: **9, 12**

Question 2

- **B1** Correct explanation that 29 has no divisors other than 1 and itself, or states it is prime cao
- Answer: **Yes. 29 is prime because it has no factors other than 1 and 29.**

Question 3

- **B1** Next two multiples 35 and 42 cao
- Answer: **35, 42**

Question 4

- **B1** 25 and 36 circled cao
- Answer: **25, 36**

Question 5

- **B1** Most correct factors given (follow through allowed) oe
- **B1** All factors 1, 2, 3, 5, 6, 10, 15, 30 cao
- Answer: **1, 2, 3, 5, 6, 10, 15, 30**

Question 6

- **B1** 53 cao
- Answer: **53**

Question 7

- **B1** Identify that 91 is divisible by 7 (or 13) or show $91 = 7 \times 13$
- **B1** Conclude that 91 is not prime cao
- Answer: **No. $91 = 7 \times 13$ so it is not prime.**

Question 8

- **M1** Correct method shown, e.g. listing common factors or prime factor method
- **B1** $HCF = 12$ cao
- Answer: **12**

Question 9

- **B1** Any two consecutive squares greater than 9, for example 16 and 25 cao
- Answer: **16, 25**

Question 10

- **M1** Correct operation to undo multiplication, e.g. $81 \div 9$ seen
- **B1** Original number 9 cao
- Answer: **9**

Question 11

- **B1** Identify number 49 (a square of a prime) or equivalent
- **B1** List factors 1, 7, 49 cao
- Answer: **49; 1, 7, 49**

Question 12

- **M1** Method shown to count multiples, e.g. $80 \div 8$ or listing multiples
- **B1** Correct count 10 cao
- **B1** Supporting statement or listing of multiples 8, 16, ..., 80 oe
- **Answer: 10**

Question 13

- **B1** No and reason that 1 has only one factor so it is not prime cao
- **Answer: No. 1 is not prime because it has only one factor (1) not two.**

Question 14

- **M1** Method shown using prime factors or listing multiples
- **B1** LCM = 60 cao
- **B1** Supporting evidence such as $12 \times 5 = 60$ or $15 \times 4 = 60$ oe
- **Answer: 60**

Question 15

- **M1** Method shown to check divisibility or explain elimination of composites
- **B2** All primes correctly listed: 23, 29, 31, 37 cao
- **Answer: 23, 29, 31, 37**

Question 16

- **B1** Show that $121 = 11 \times 11$ or state a factorisation
- **B1** Conclude that 121 is not prime cao
- **Answer: No. $121 = 11 \times 11$ so it is not prime.**

Question 17

- **M1** Method shown, e.g. list squares up to 100 or test pairs
- **B1** Correct pair 81 and 100 given and sum shown to be 181 cao
- **Answer: 81, 100**

Question 18

- **M1** Method shown to find numbers that are multiples of both 3 and 4, e.g. recognise LCM = 12 or show listing
- **B1** List of multiples: 12, 24, 36, 48 oe
- **B1** Correct count 4 cao
- **Answer: 12, 24, 36, 48; 4**