**Q1.**

Write **all** the numbers between 50 and 100 that are **factors of 180**

****

2 marks

**Q2.**

This three-digit number has **2** and **7** as **factors**.

2  9  4

Write another **three-digit** number which has **2** and **7** as **factors**.



1 mark

**Q3.**

Write in the **two** missing digits.



1 mark

**Q4.**

The factors of 11 sum to 12

Write the other number whose factors sum to 12



1 mark

**Q5.**

364 is a multiple of 7 but not a multiple of 3

384 is a multiple of 3 but not a multiple of 7

Find a number between 364 and 384 that is **both** a multiple of 7 **and** a multiple of 3



2 marks

**Q6.**

﻿

Work out the missing numbers below.

The first one is done for you.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| The first | 5 | multiples of | 4 | **add to 60** |

   (because 4 + 8 + 12 + 16 + 20 = 60)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| The first | 3 | multiples of |   | **add to 60** |

1 mark

Now use **different** numbers to complete the sentence below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| The first |   | multiples of |   | **add to 60** |

1 mark

**Q7.**

P stands for a **multiple of 3**

Q stands for a different **multiple of 3**

Tick (✔) each statement according to whether it is **always true**, **sometimes true** or **never true**.

|  |  |  |  |
| --- | --- | --- | --- |
|   | **alwaystrue** | **sometimestrue** | **nevertrue** |
| The **sum** of P and Q is a **multiple of 6** |   |   |   |
| The **difference** between P and Q is a **multiple of 3** |   |   |   |
| The **product** of P and Q is a **multiple of 9** |   |   |   |

2 mark

**Q8.**

Any number can be written as a product of its prime factors,
for example:

20 = 2 × 2 × 5



Write 90 as a product of its prime factors.

90 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1 mark

**Q9.**

Chen chooses a **prime** number.

He multiplies it by 10 and then rounds it to the nearest hundred.

His answer is **400**.

Write **all** the possible prime numbers Chen could have chosen.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2 marks

**Q10.**

Emma thinks of two **prime** numbers.

She adds the two numbers together.

Her answer is 36

Write **all** the possible pairs of prime numbers Emma could be thinking of.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2 marks

**Q11.**

The three numbers missing from these boxes are all **prime numbers greater than 3**

Write in the missing **prime numbers**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | × |  | × |  | = | 1001 |

1 mark

**Q12.**

Write the **three prime numbers** which multiply to make **231**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | × |  | × |  | = 231 |

1 mark

Mark schemes

**Q1.**

Award **TWO** marks for the correct answer of 60 **AND** 90

*Numbers may be given in either order.*

          If the answer is incorrect, award **ONE** mark for:

•    both numbers correct and one or more additional factors of 180



          **OR**

•    both numbers correct and one number which is not a factor of 180



          **OR**

•    one number correct and none incorrect.



**Up to 2**

**[2]**

**Q2.**

Any 3-difit number that is a multiple of 14, eg:

          

*Any acceptable answers will be even numbers which divide by 7*

***Do not*** *accept ‘0’ in the hundreds box.*

*Only* ***three digit*** *numbers are acceptable.*

**[1]**

**Q3.**

5 and 6 written in the boxes in either order as shown:



**OR**

****

**[1]**

**Q4.**

6

**U1**

**[1]**

**Q5.**

Award **TWO** marks for the correct answer of 378

If the answer is incorrect, award **ONE** mark for
evidence of an appropriate method, eg:

•        366 369 372 375 378 381

364 371 378 385

**OR**

•        Factorisation/calculator method, eg

7 × 3 = 21

21 × 18

*Answer need not be obtained for the award of* ***ONE*** *mark.*

**Up to 2**

**U1**

**[2]**

**Q6.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| The first | **3** | multiples of | **10** | **add to 60** |

**1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| The first | **4** | multiples of | **6** | **add to 60** |

or

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| The first | **2** | multiples of | **20** | **add to 60** |

or

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| The first | **1** | multiples of | **60** | **add to 60** |

**1**

**U1**

**[2]**

**Q7.**

Award **TWO** marks for the table completed correctly as shown:



          If the answer is incorrect, award **ONE** mark for two out of three ticks correctly placed.

*Accept alternative indications, eg crosses in the table.*

***Do not*** *accept any row that has ticks in more than one column.*

**Up to 2**

**[2]**

**Q8.**

2 × 3 × 3 × 5

*Numbers can be written in any order*

**[1]**

**Q9.**

Gives only the three correct prime numbers in any order, ie:

•        37, 41, 43

**2**

***or***

Gives at least two correct prime numbers **and**not more than one incorrect number, eg:

•        37, 39, 41, 43

•        39, 41, 43

•        41, 43

**1**

**[2]**

**Q10.**

All four pairs of prime numbers listed, ie:

•        5 and 31

7 and 29

13 and 23

17 and 19

*For 2m, accept all prime numbers listed in pair order, ie:*

*•   5, 31, 7, 29, 13, 23, 17, 19*

**2**

***or***

Three or four correct pairs of prime numbers listed and not more than
one incorrect pair of numbers

*For 1m, accept all eight prime numbers listed, and no other numbers, without any indication of how the numbers are paired, eg:*

*•   5, 7, 13, 17, 19, 23, 29, 31*

**1**

**[2]**

**Q11.**

****

**OR** any permutation of these

*Accept answers elsewhere on the page if boxes are blank.*

**[1]**

**Q12.**

3 **AND** 7 **AND** 11

*Accept numbers in any order.*

**[1]**