**Q1.**

Write these numbers in the correct places on the diagram.

**5                  6                  7                  8**



2 marks

**Q2.**

Tick the numbers that are common factors of both **12 and 18**

|  |  |
| --- | --- |
| 2 |  |
| 3 |  |
| 6 |  |
| 9 |  |
| 12 |  |

2 marks

**Q3.**

Write three factors of 30 that are **not** factors of 15



2 marks

**Q4.**

Here are six digit cards.



Use **all six** digit cards to make three multiples of 3



1 mark

**Q5.**

Write **all** the common multiples of 3 and 8 that are **less than 50**

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

1 mark

**Q6.**

Here are five number cards.



Use each card **once** to make every statement below correct.



2 marks

**Q7.**

Amir says,

***‘All numbers that end in a 4 are multiples of 4’.***

******

Is he correct?
Circle **Yes** or **No**.                                                                          Yes / No

Explain how you know.



1 mark

**Q8.**

Here is a number chart.

Circle the **smallest** number on the chart that is a multiple of **both** 2 and 7

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

1 mark

Here is the same number chart.

Circle the **largest** number that is **not** a multiple of 2 or 3 or 5

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

1 mark

**Q9.**

In the circles, write a multiple that belongs to each set.

One has been done for you.



2 marks

**Q10.**

Circle the **prime** number.

  95        89        87

Explain how you know the other numbers are **not** prime.



1 mark

**Q11.**

Circle **all** the **prime factors** of 30

2          3          5          6          10

1 mark

**Q12.**

Here are three digit cards

           

Choose two cards each time to make the following two-digit numbers.

The first one is done for you.

|  |  |  |
| --- | --- | --- |
| an even number |  |  |
| an prime number |  |  |
| a common factor of 60 and 90 |  |  |
| a common multiple of 5 and 13 |  |  |

2 marks

Mark schemes

**Q1.**

Award **TWO** marks for numbers written in the correct regions as shown:



          If the answer is incorrect, award **ONE** mark for any three numbers written in the correct regions.

***Do not*** *accept numbers written in more than one region.*

*Accept alternative indications such as lines drawn from the numbers to the appropriate regions of the diagram.*

**

*Lines need not touch the time line provided the intended accuracy is clear.*

**Up to 2**

**[2]**

**Q2.**

Award **TWO** marks for only three correct boxes ticked, as shown:

|  |  |
| --- | --- |
| 2 |  |
| 3 |  |
| 6 |  |
| 9 |  |
| 12 |  |

Award **ONE** mark for:

•   only two correct boxes ticked and no incorrect boxes ticked

**OR**

•   three correct boxes ticked and one incorrect box ticked.

*Accept alternative unambiguous positive indications, e.g. Y.*

**Up to 2 marks**

**[2]**

**Q3.**

Award **TWO** marks for any three of the following numbers written in any order:

•    2

•    6

•    10

•    30

If the answer is incorrect, award **ONE** mark for two numbers correct.

**Up to 2m**

**[2]**

**Q4.**

Three multiples of 3, eg:


**OR
**

*Multiples may be given in any order.*

*Digits may be in either order, eg 24* ***OR*** *42*

***Do not*** *accept digits used more than once.*

***Do not*** *accept digits other than those shown.*

**U1**

**[1]**

**Q5.**

24 **AND** 48 only

*Numbers may be given in either order.*

**[1]**

**Q6.**

Award **TWO** marks for the correct answer as shown:



If the answer is incorrect, award **ONE** mark for 4 true statements
with no number repeated (within those 4), eg:



***Do not*** *accept numbers other than those given.*

*(Multiple of 3 can be 48* ***OR*** *51)*

*(Multiple of 4 can be 48* ***OR*** *52)*

**Up to 2**

**U1**

**[2]**

**Q7.**

An explanation which gives a counter-example to illustrate that not all numbers
ending in 4 are multiples of 4, eg:

•    ‘14 is not a multiple of 4’

•    ‘4, 24 and 44 are multiples of 4, but not 14 and 34’

•    ‘14 or 34 don’t work’

•    ‘54’

          **OR**

          an explanation which recognises that only numbers ending in 4 which have
an even number of tens are multiples of 4, eg:

•    ‘It has to have an even number of 10s as well, like 20 or 40’

•    ‘14, 24, 34, 44, 54, 64 – only half of them are’

•    ‘4 doesn’t go into 10 so 14 isn’t’.

*No mark is awarded for circling ‘No’ alone.*

***Do not*** *accept vague or incomplete explanations, eg:*

*•*    *‘Some numbers end in a 4 but aren’t multiples of 4’*

*•*    *‘16 doesn’t end in 4’*

*•*    *‘Not all multiples of 4 end in 4’*

*•*    *‘24 is a multiple of 4 but the next one isn’t’*

*•*    *‘4, 8, 12, 16, 20, 24 etc’.*

*If ‘Yes’ is circled but a correct, unambiguous explanation is given, then award the mark.*

**U1**

**[1]**

**Q8.**

(a)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 |  | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

**1**

(b)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 |  | 98 | 99 | 100 |

***Do not*** *award the mark if more than one number is circled.*

*Accept alternative unambiguous indications, eg numbers ticked, crossed or underlined.*

**1**

**[2]**

**Q9.**

Award **TWO** marks for three rows completed correctly as shown:



If the answer is incorrect, award **ONE** mark for two rows correct.

**Up to 2**

**[2]**

**Q10.**

Award **ONE** mark for a correct explanation of why the 95 **AND** 87 are **NOT** prime, e.g.

•   87 is divisible by 3 and/or 29 **AND** 95 is divisible by 5 and/or 19

•   87 is in the 3 times table **AND** 95 is in the 5 times table

•   95 is divisible by five because every number in the five times table ends in five or zero. 87 is divisible by three because 9 is in the three times table so is ninety. Ninety minus three is 87

•   8 + 7 = 15 and 15 is divisible by 3 **AND** 95 is divisible by 5

*No mark is awarded for circling ‘89’ alone.*

*Both non-primes must be explained correctly for the award of the mark.*

***Do not*** *accept vague or incomplete explanations, e.g.*

*•   The other 2 numbers have more than 2 factors (vague)*

*•   87 is divisible by 3 (incomplete).*

***Do not*** *accept explanations which include incorrect mathematics or incorrect information that is relevant to the explanation, e.g.*

*•   3 × 27 = 87*

*•   89 has three factors*

*•   no numbers go into 89*

**[1]**

**Q11.**

Award **ONE** mark for 2, 3 and 5 circled only.

**[1]**

**Q12.**

All three correct
61
15
65

**2**

***or***

Any two correct

**1**

**[2]**