**2020 Multiples, factors and primes – trickier practice! Try 2 or more**

**Q1.**

Write a cross on the numbers that are not square numbers.

12          23          33          43          53

1 mark

**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.**

Put these values in order with the smallest first

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | 52 | 32 | 33 | 23 |
|   |   |   |   |   |
|   | smallest |   |   | largest |

1 mark

**Q4.**

The factors of 11 sum to 12

Write the other number whose factors sum to 12



1 mark

**Q5.**

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

Write in the missing **prime numbers**.

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

1 mark

**Q6.**

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

**Q7.**

Look at this expression.

10*y* + 2

When *y* = 0.4, the value of 10*y* + 2 is an **even** number because 10 × 0.4 + 2 = 6

Write a value for *y* so that 10*y* + 2 is a **prime** number.



1 mark

Now write a value for *y* so that 10*y* + 2 is a **square** number.



1 mark

**Q8.**

*n* and *p* stand for two numbers.

*n* is a multiple of 5
*p* is a multiple of 6



Find numbers that *n* and *p* stand for.



2 marks

**Q9.**

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

**M1.**13               43           

*Accept any unambiguous indication*

**[1]**

**M2.**          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]**

**M3.**23       32       52       33

*Accept 8, 9, 25, 27*

**[1]**

**M4.**         6

**U1**

**[1]**

**M5.**          

**OR** any permutation of these

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

**[1]**

**M6.**All three correct
61
15
65

**2**

***or***

Any two correct

**1**

**[2]**

**M7.**         (a)     Gives a value for *y* such that 10*y* + 2 is a prime number, eg:

•        0

•        

•        1.7

**1**

(b)     Gives a value for *y* such that 10*y* + 2 is a square number, eg:

•        -0.1

•        0.2

•        0.7

•        1.4

**1**

**[2]**

**M8.**Award marks as shown below for values of *n* and *p*which meet the following criteria:

|  |  |  |
| --- | --- | --- |
|   |   | ***n:p*** |
|   |   | **2:3** | **3:2** |
|   | ***n*** is multiple of **5and*p*** is multiple of **6** | 2 marks[A] | 1 mark[C] |
|   | ***n*** is multiple of **5or*p*** is multiple of **6** | 1 mark[B] | 0 marks |

The following examples are worth 2 marks:

•        *n* = 20 **and** *p* = 30 [A]

•        *n* = 80 **and** *p* = 120 [A]

*!    For 2m or 1m, accept multiple answers provided all meet the requirements for the mark(s) and are clearly distinguishable as separate answers, eg for 2 marks*

*•    n = 20, 40, 60*

*p = 30, 60, 90*

**2**

***or***

The following examples are worth 1 mark:

•        *n* = 5 and *p* =  7.5 [B]

•        *n* = 10 and *p* = 15 [B]

•        *n* = 4 and *p* = 6 [B]

•        *n* = 90 and *p* = 60 [C]

**OR**

Shows or implies a method for rearranging 
which moves *p* from the denominator, eg:

•        3*n* = 2*p*

•        

**OR**

Shows or implies a complete correct method, eg:

•        2 × 5 × 6  :  3 × 5 × 6

*!    For 1m, condone a list of at least five additional ratios or fractions equivalent to  with none incorrect*

**1**

**[2]**

**M9.**          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]**