

Mark scheme

**Q1.**

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.

- $3 \times 27 = 87$
- *89 has three factors*
- *no numbers go into 89*

[1]

**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 three rows completed correctly as shown:

50

**120** OR 140 OR 160 OR 180

**210** OR 240 OR 270

**320** OR 360

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

Up to 2

[2]

**Q4.**

- (a) Two numbers from the sequence that total 96, eg:

43 **AND** 53

**OR**

23 **AND** 73

*Numbers may be given in either order.*

*Accept negative numbers, eg -7 **AND** 103*

1

- (b) An explanation that recognises that adding three numbers ending in 3 will produce a number ending in a 9 eg:

- 'They all end in 3 so adding three will give a number ending in 9'
- 'If you add three numbers in the sequence you will always get a number ending in 9'
- 'All the numbers are odd and 96 is even'
  - **Do not** accept vague or incomplete explanations, eg:
    - 'All the numbers end in three'
    - 'It only works with two numbers'
    - '3 odds add to make an even'

U1

[2]

**Q5.**

Award **TWO** marks for a multiple of 15 which is greater than 100, eg

105 **OR** 120 **OR** 135 **OR** 150 **OR** 300

*Accept more than one answer if all are correct.*

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

*Accept for **ONE** mark 30, 45, 60, 75 **OR** 90*

- 90 93 96 99 102 105 108 ...  
90 95 100 105 110 115 ... ← Not spotting matching number (105)
- 90 93 96 98 101 104 107 (110) ...  
90 95 100 105 (110) 115 ... ← One step size incorrect (96 to 98)
- 15 30 45 60 75 80 95 110 (125) ... ← One step size incorrect (75 to 80)
- $3 \times 5 \times 20$   
OR  
 $15 \times 10$  ← Multiple greater than 100 but not calculated

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

Up to 2

[2]

**Q6.**

(a) 5

1

(b) 13

1

[2]

**Q7.**

Any odd numbered multiple of 10, ie 10 **OR** 30 **OR** 50 **OR** 70 **OR** 90 **OR** any number ending with any of the pairs of digits above.

1

An explanation which recognises that all multiples of 20 are also multiples of 10, eg:

- 'Because all the numbers in the 20 times table are also in the 10 times table'
- 'Because all multiples of 20 are multiples of 10'
- 'Because 20 is in the 10 times table'
- 'All multiples of 20 go in box A because 10 goes into them'
- '20 is a multiple of both 20 and 10, and so is 40, 60, etc'
- 'Because if it's not a multiple of 10, it can't be a multiple of 20'
- 'Because if it is a multiple of 20, it has to be a multiple of 10'
- 'Because 10 is a factor of 20'.

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

- 'Because 40 is a multiple of 10'
- 'Because they would be in box A instead'
- 'Because all the multiples of 10 are multiples of 20'
- 'Because 10 is a multiple of 20'.

1

[2]

**Q8.**

Award **TWO** marks for all three numbers correct as shown:

- a multiple of 9 

2	7
---	---

 OR 

7	2
---	---
- a square number 

2	5
---	---
- a factor of 96 

1	2
---	---

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

Up to 2

[2]

**Q9.**

Award **TWO** marks for one correct number written in each white section of the table, eg

	less than 1000	1000 or more
multiples of 20	100	2000
not multiples of 20	19	1001

If the answer is incorrect, award **ONE** mark for three sections completed correctly.

*Accept more than one number in each section as long as **all** are correct.*

Up to 2

[2]

**Q10.**

20

[1]

**Q11.**

2, 4, 5, 10

*All correct, in any order for 1 mark.*

[1]

**Q12.**

109 **OR** 118 circled.

*Accept both 109 and 118 circled.*

[1]

**Q13.**

All three correct

61

15

65

2

*or*

Any two correct

1

[2]

**Q14.**

All four correct

1 & 42

2 & 21

3 & 14

6 & 7

2

*or*

any three correct

1

[2]

**Q15.**

Award **TWO** marks for any three of the following pairs, as shown. Factor pairs can be in either order.

2 and 24

3 and 16

4 and 12

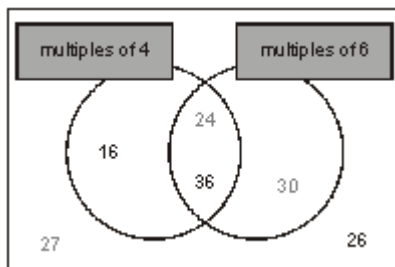
6 and 8

Award **ONE** mark for any two of the above pairs.

[2]

**Q16.**

Award **TWO** marks for all three numbers correctly placed in the regions as shown:



***Do not** accept a number repeated in different regions.*

***Do not** penalise answers which offer additional numbers (other than 16, 26 and 36) on the diagram, whether correctly placed or not.*

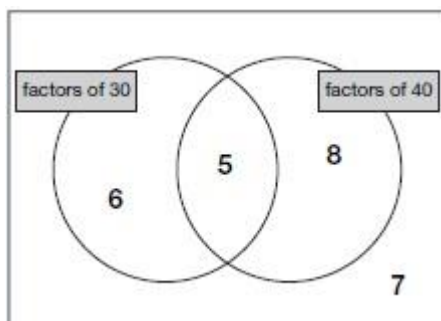
If the answer is incorrect, award **ONE** mark for two numbers correctly placed.

Up to 2

[2]

**Q17.**

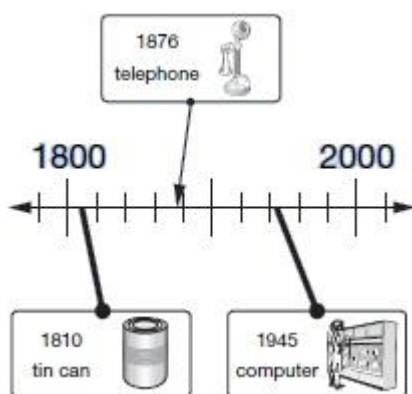
Award **TWO** marks for numbers written in the correct regions as shown:



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]

**Q18.**

3 and 11 in either order.

[1]

**Q19.**

Composite number indicated

[1]

**Q20.**

Award **TWO** marks for numbers placed in boxes as shown below:

<b>17</b>
<b>20</b>
<b>9</b>

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

**Do not** accept a number repeated in different boxes.

*Ignore any numbers on the diagram other than those given.*

Up to 2

[2]

**Q21.**

Award **TWO** marks for four correct numbers, e.g.

	even	not even
a cube number	<b>64</b>	<b>27</b>
not a cube	<b>4</b>	<b>5</b>

number		
--------	--	--

Award **ONE** mark for any three correct.

[2]

**Q22.**

Explanation that recognises that 125 is  $5 \times 5 \times 5$

[1]