1 Here are four digit cards.

| 7 | 5 | 2 | 1 |

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

The first one is done for you.

an even number — | 5 | 2 |

a multiple of 9 — | | |

a square number — | | |

a factor of 96 — | | |

2 marks

2 Complete this sentence.

Every number with a factor of **10** must also have factors of
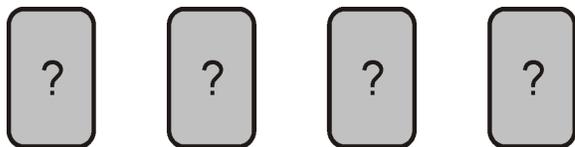
☐ and ☐ and ☐

1 mark

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

....

2 marks

4 Debbie has a pack of cards numbered from 1 to 20

She picks four different number cards.
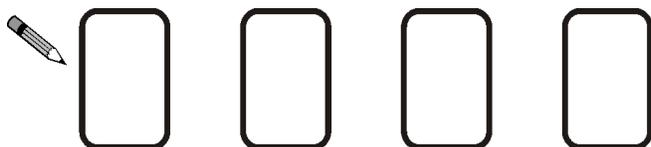
| ? | ? | ? | ? |

Exactly three of the four numbers are multiples of 5

Exactly three of the four numbers are even numbers.

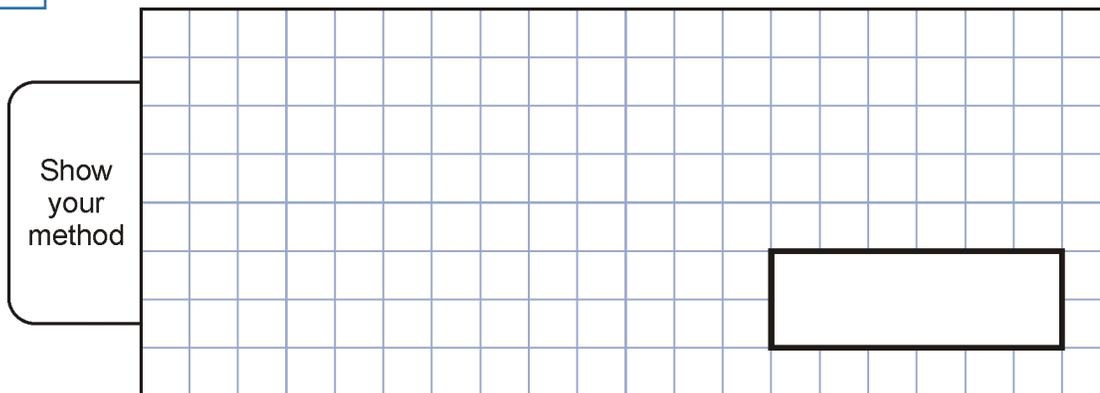All four of the numbers add up to less than 40

Write what the numbers could be.

| | | | |

1 mark

5 Find the multiple of 45 that is closest to 8000

Show your method

2 marks

6 Complete this **three-digit** number so that it is a **multiple of 9.**

| 2 | | |

1 mark

7 Here is a number chart.

Every third number in the chart has a circle on it.

1	2	③	4	5
⑥	7	8	⑨	10
11	⑫	13	14	⑮
16	17	⑱	19	20
㉑	22			

The chart continues in the same way.

Here is another row in the chart.
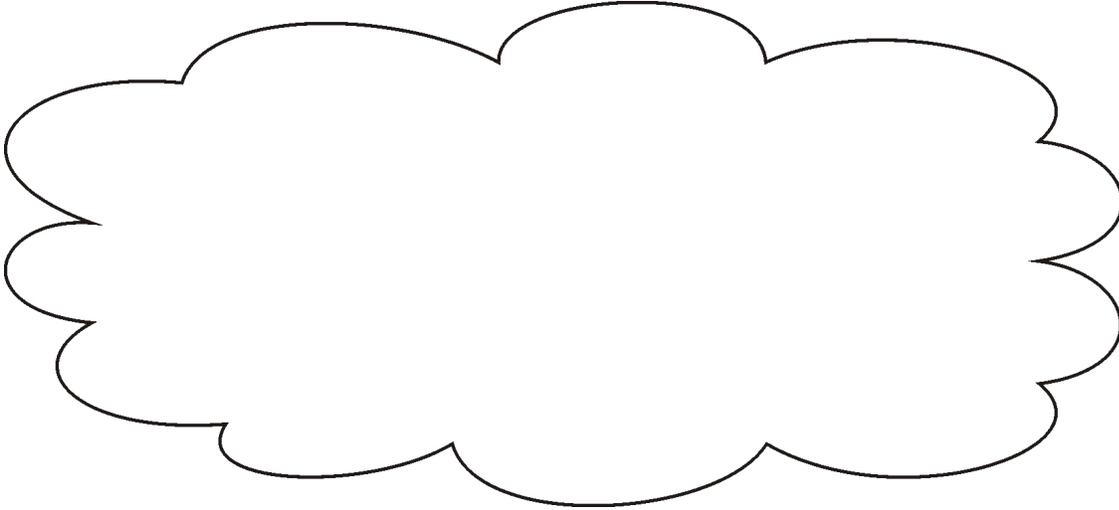
Draw the missing circles.

71	72	73	74	75

1 mark

Will the number **1003** have a circle on it?
Circle **Yes** or **No**.

✎ Yes / No

Explain how you know.

✎

1 mark

8 364 is a multiple of 7 but not a multiple of 3.
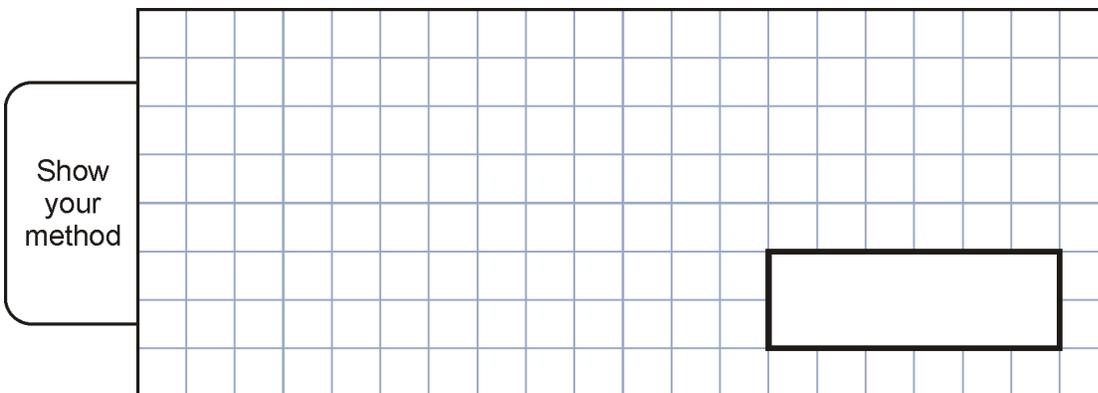
384 is a multiple of 3 but not a multiple of 7.

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

✎

Show
your
method

2 marks

9   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

Mark schemes

1 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.

<div align="right">Up to 2</div>
<div align="right">[2]</div>

2 1, 2 and 5

Numbers may be given in any order.

<div align="right">[1]</div>

3 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

  eg 30, 45, 60, 90

  OR

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

  eg 60, 90, 100

  OR

- one number correct and none incorrect.

  eg 60

<div align="right">Up to 2</div>
<div align="right">[2]</div>

4 | 2 | 5 | 10 | 20 |

OR

| 4 | 5 | 10 | 20 |

Accept the four numbers listed in any order.

U1

[1]

5 Award **TWO** marks for the correct answer of 8010

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

- 8000 ÷ 45 = wrong number
  then wrong number rounded to the nearest whole number

  *Accept 178 for **TWO** marks*

  *Accept for **ONE** mark 7965 **OR** 177 as evidence of appropriate method*

OR

- a 'trial and improvement' method, eg
  150 × 45 = 6750
  200 × 45 = 9000
  175 × 45 = 7875

  A 'trial and improvement' method must show evidence of improvement.

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

Up to 2

[2]

6 Any three-digit number that is a multiple of 9, eg:

2 0 7

If correct, the sum of the digits will be 9 or 18.

If boxes are blank, accept answer elsewhere on the page.

[1]

7 Two numbers circled as shown:

74 **(72)** 73 74 **(75)**

An explanation which recognises that 1003 is not a multiple of 3, eg:

- 'Because 1003 is not divisible by 3'

- 'Because 1003 is not a multiple of 3'

- 'Because 1003 is not in the 3 times table'

- 'Because I divided 1003 by 3 and there was a remainder'

- 'Because 1003 + 3 has a decimal answer'

- 'Because 1 + 0 + 0 + 3 = 4, and 4 is not a multiple of 3'

- 'Because 1003 has a digital sum of 4'

- 'Because 1002 is the nearest in the 3 times table'

- 'Because 1000 is not divisible by 3'

- 'Because 999 is divisible by 3'.

> *Do not* award the mark if additional incorrect numbers are circled.
> *Accept alternative unambiguous indications, eg ticks, crosses.*
> *No mark is awarded for circling 'No' alone.*
> *Do not* accept vague or arbitrary explanations, eg:
> - *'Because 1003 ends in 3'*
> - *'Because 1003 is in the third column'*
> - *'Because if you keep going in 3s you will go past it'.*
>
> *If 'Yes' is circled but a correct unambiguous explanation is given, then award the mark.*

U1

[2]

8 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

  $7 \times 3 = 21$

  21×18

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

                                                              Up to 2
                                                                 U1

                                                                                    [2]

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

3	0	8

    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]