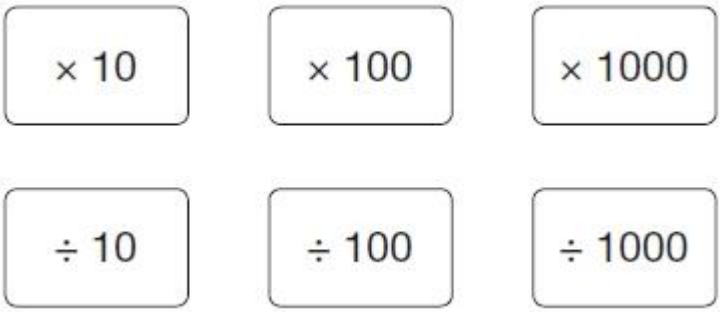
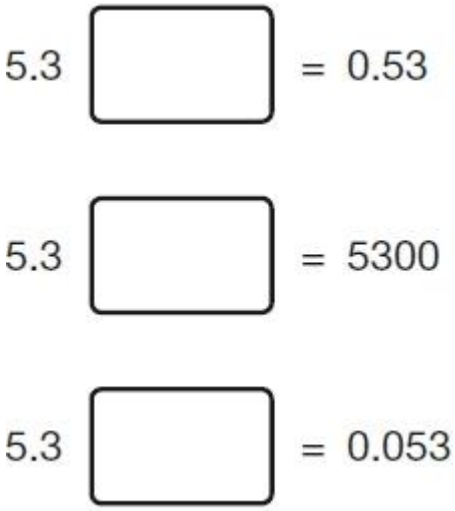
Q1.

Here are six cards.



Use a card to complete each calculation.



2 marks

Q2.

Here are five number cards.

Use **four** of the cards to complete these calculations.

47 ÷ ☐ = ☐

☐ × ☐ = 40.7

1 mark

Q3.

☐ × 10 = 350.5

460 ÷ ☐ = 4.6

2.3 × ☐ = 2,300

2 marks

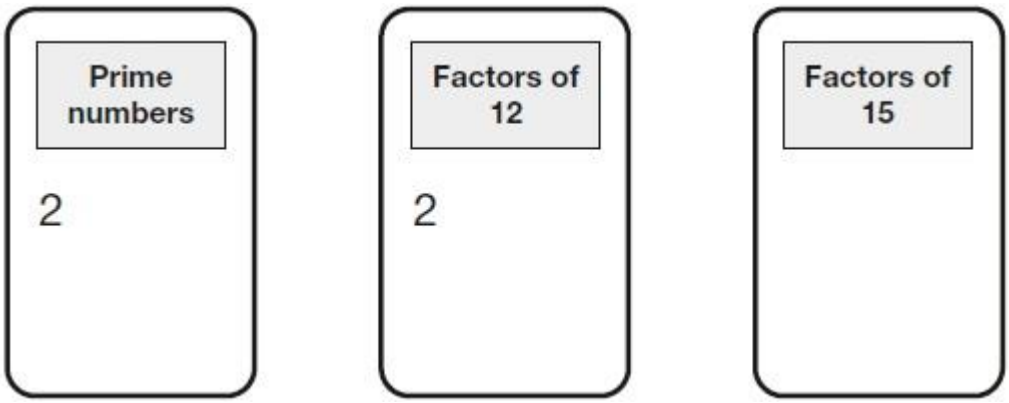
Q4.

Here are five numbers.

~~2~~ 3 4 5 6

Write each number on the correct cards.

The number 2 has been written on the correct cards for you.



2 marks

Q5.

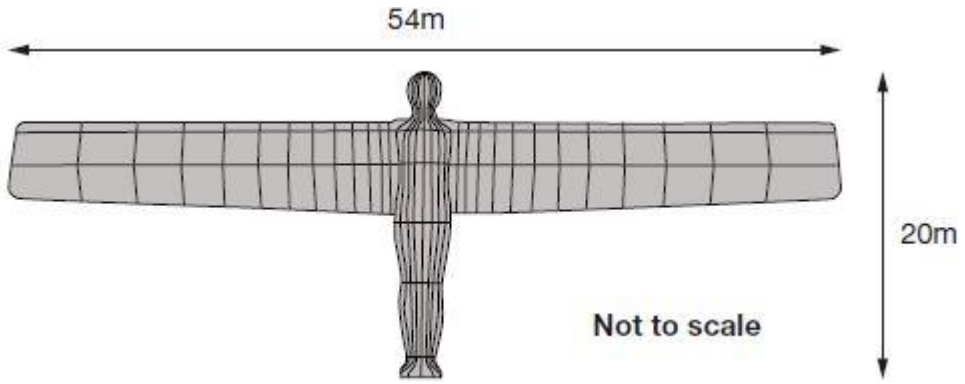
Write three factors of 30 that are **not** factors of 15

2 marks

Q6.

The Angel of the North is a large statue in England.

It is 20 metres tall and 54 metres wide.



Ally makes a scale model of the Angel of the North.

Her model is 40 centimetres tall.

How **wide** is her model?

cm

1 mark

Q7.

Complete this sentence.

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

and and

1 mark

Q8.

Here are three digit cards

1	5	6

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

The first one is done for you.

an even number	5	6
an prime number		
a common factor of 60 and 90		
a common multiple of 5 and 13		

2 marks

Q9.

Write all the factors of 30 which are **also** factors of 20

_____

2 marks

Q10.

The factor pairs of 8 are

1	and	8	
2	and	4	

Write all the factor pairs of 42

1	and	42	
2	and		
	and		

6 and ☐

2 marks

Q11.

$$23 \times 36 = 23 \times 9 \times \square$$

1 mark

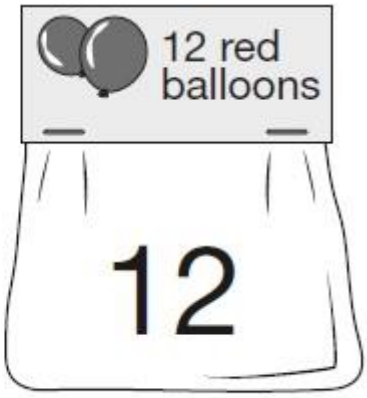
Q12.

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

2 3 5 6 10

1 mark

Q13.



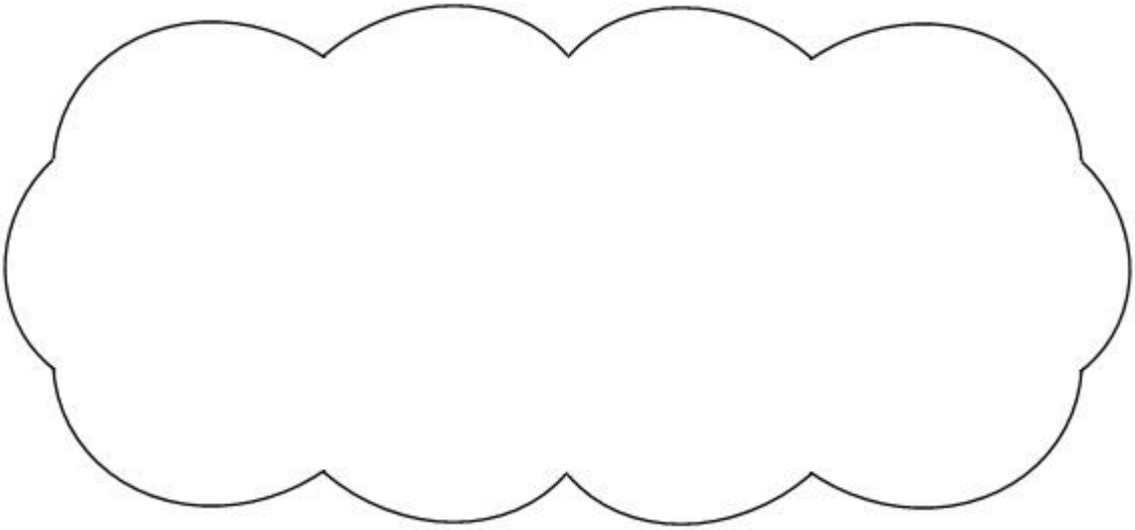
Adam buys **6** bags of white balloons.

Chen buys **3** bags of red balloons.

Adam says,

'I have four times as many balloons as Chen.'

Explain why Adam is correct.



1 mark

Q14.

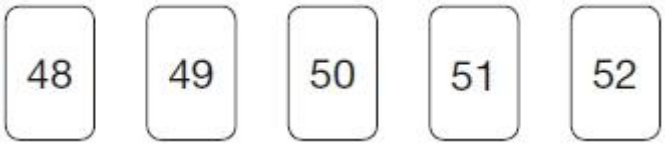
Write **all** the common multiples of 3 and 8 that are **less than 50**

_____

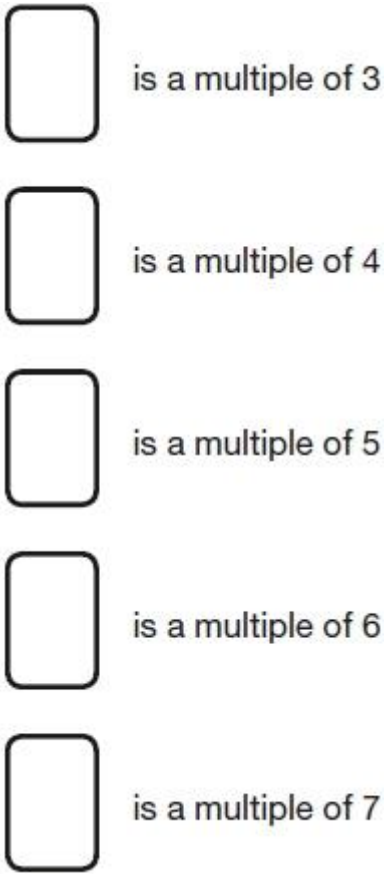
1 mark

Q15.

Here are five number cards.



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



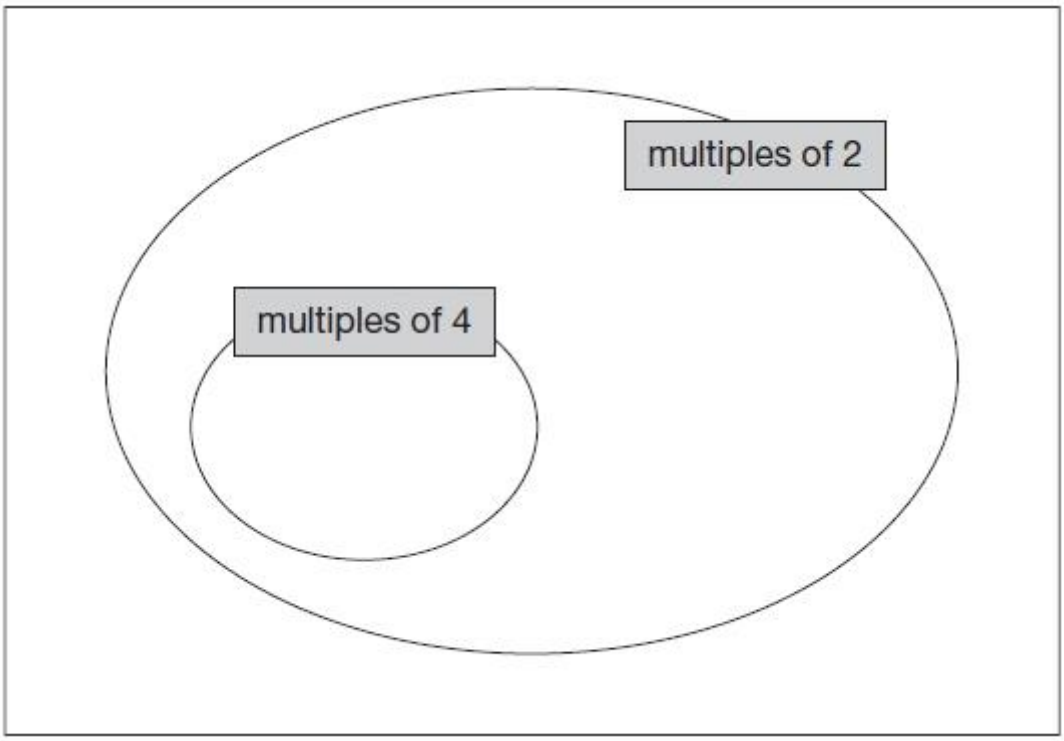
2 marks

Q16.

Here is a Venn diagram for sorting numbers.

Write each number in its correct place on the diagram.

10 11 12 13



2 marks

Q17.

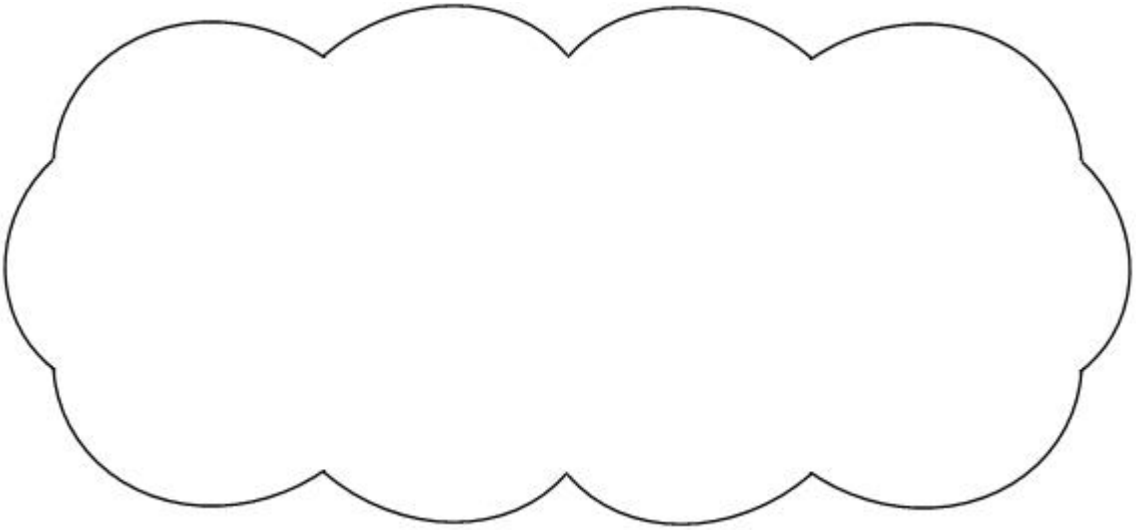
Amir says,

'All numbers that end in a 4 are multiples of 4'.

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

Yes / No

Explain how you know.

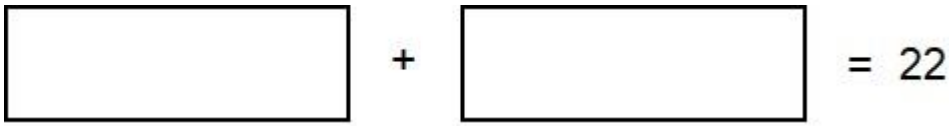


1 mark

Q18.

A **square** number and a **prime** number have a total of 22

What are the two numbers?



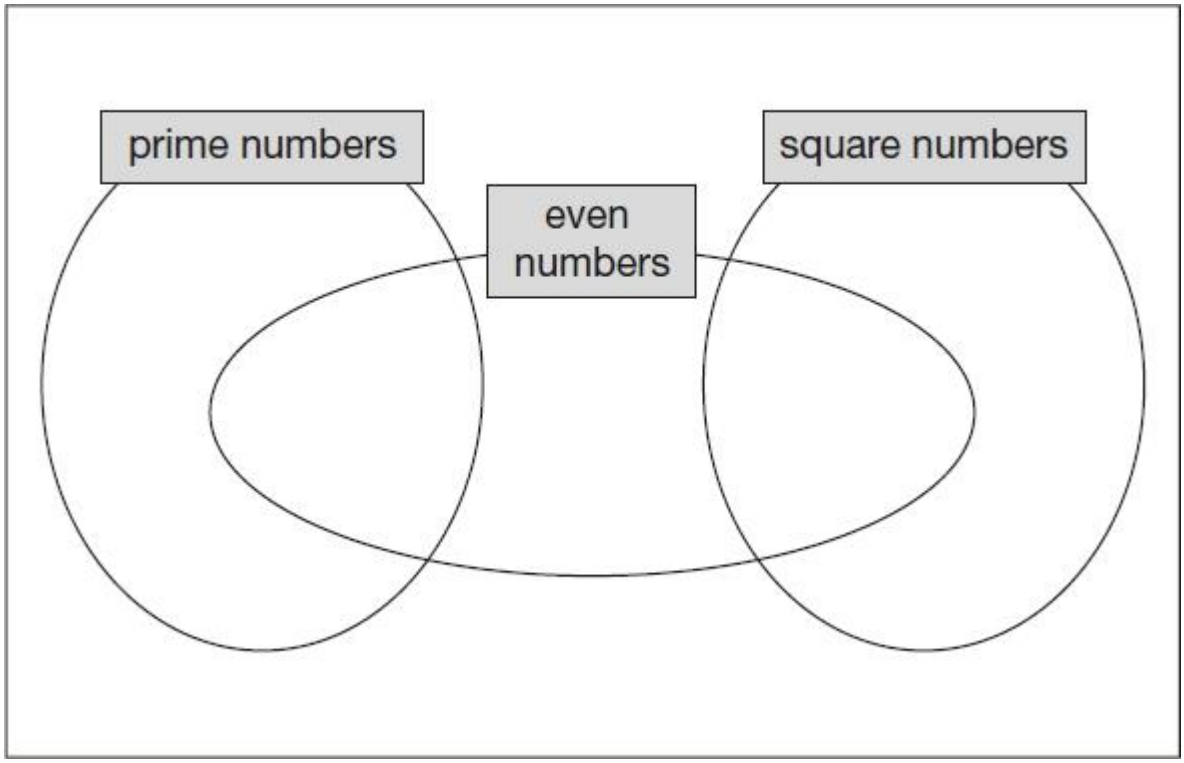
square number prime number

1 mark

Q19.

Write each number in its correct place on the diagram.

16 17 18 19



2 marks

Q20.

Here is a sorting diagram for numbers.

Write a number **less than 100** in each space.

	even	**not** even
a square number		
not a square number		

2 marks

Q21.

Find two **cube numbers** that total 152

☐ + ☐ = 152

1 mark

Q22.

1 is both a square number and a cube number.
4 is a square number, but not a cube number.

What is the next number that is both a square number and a cube number?

1 mark

Q23.

Here are six digit cards.

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

Use each digit card once.

a multiple of 5	
a square number	
a cube number	

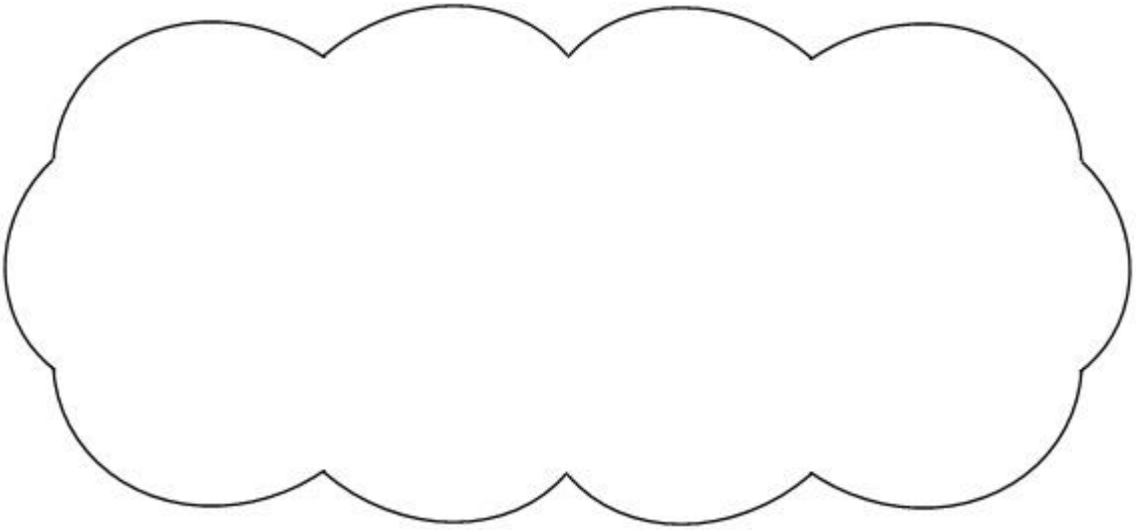
2 marks

Q24.

Circle the **prime** number.

95 89 87

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



1 mark

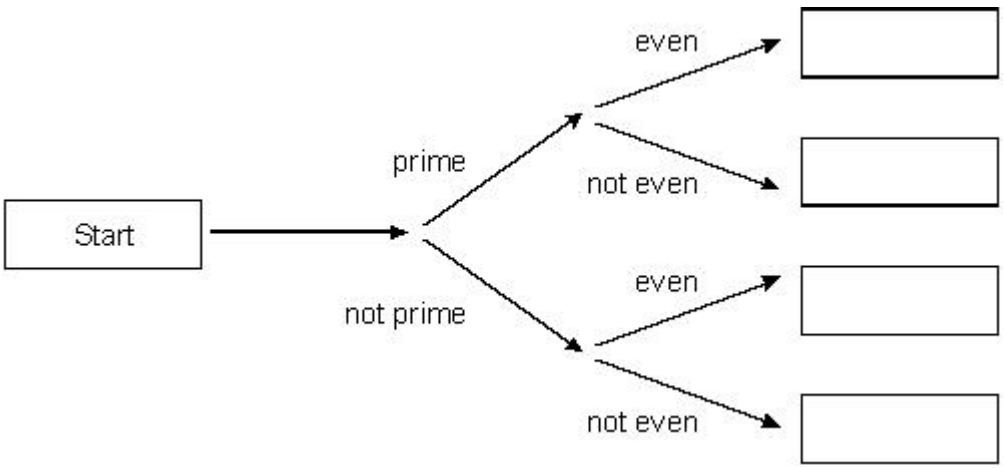
Q25.

Here is a diagram for sorting numbers.

Write these three numbers in the correct boxes.

You may not need to use all of the boxes.

9 17 20



2 marks

Q1.

Award **TWO** marks for all three calculations completed correctly, as shown:

5.3 [÷ 10] = 0.53

5.3 [× 1000] = 5300

5.3 [÷ 100] = 0.053

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

Up to 2

[2]

Q2.

47 ÷ [**100**] = [**0.47**]

AND

[4.07] × [**10**] = **40.7**

Numbers within calculations may be given in either order.

[1]

Q3.

All three correct
35.05
100
1000

2

or

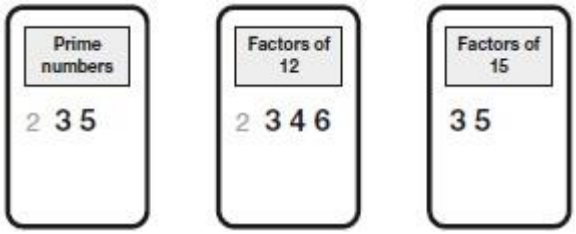
Any two correct

1

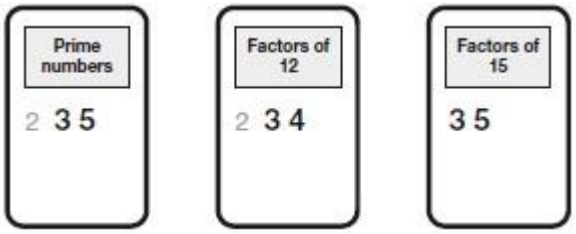
[2]

Q4.

Award **TWO** marks for all four given numbers placed completely correctly 7 times, as shown:

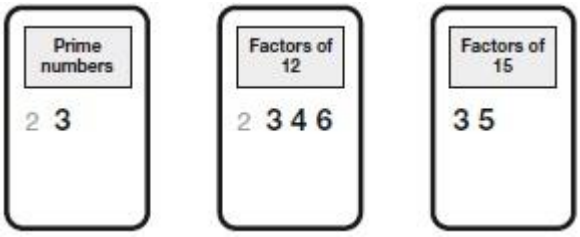


If the answer is incorrect, award **ONE** mark for three of the given numbers all placed completely correctly, e.g.



OR

OR



Accept the numbers in any order.

Ignore any additional numbers not given in the question.

Up to 2m

[2]

Q5.

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]

Q6.

108

[1]

Q7.

1, 2 and 5

Numbers may be given in any order.

[1]

Q8.

All three correct
61
15
65

2

or

Any two correct

1

[2]

Q9.

Award **TWO** marks for all four factors, as shown:

1, 2, 5, 10

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

- three factors correct and none incorrect

OR

- four factors correct and one incorrect.

Accept factors written in any order.

*All four factors and no incorrect numbers must be given for the award of **TWO** marks.*

Up to 2

[2]

Q10.

All four correct

1	&	42
2	&	21
3	&	14
6	&	7

2

or

any three correct

1

[2]

Q11.

4

[1]

Q12.

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

[1]

Q13.

An explanation that shows Adam has four times as many balloons as Chen, e.g.

- 24 × 6 is 4 times as many as 12 × 3
- 144 is four times 36
- 144 ÷ 4 = 36
- 144 ÷ 36 = 4
- 36 × 4 = 144
- Adam buys twice as many bags of twice as many balloons, so it's doubled twice
- 24 is double 12 and 6 is double 3, so it's doubled twice
- Chen buys half the amount of bags and each bag has half the number of balloons, so he has $\frac{1}{4}$ of the amount.

***Do not** accept vague or incomplete explanations, e.g.*
- *Adam buys more bags and there are more balloons in each bag*
- *Adam buys twice as many bags of twice as many balloons*
- *24 is double 12 and 6 is double 3.*

[1]

Q14.

24 **AND** 48 only

Numbers may be given in either order.

[1]

Q15.

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

51

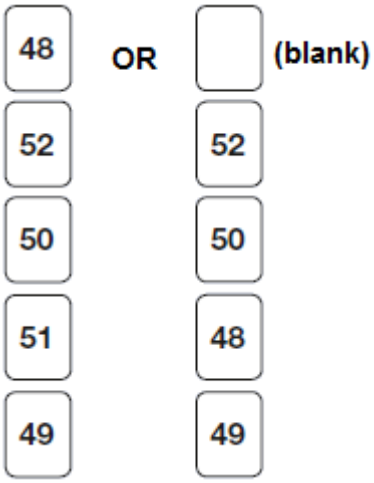
52

50

48

49

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



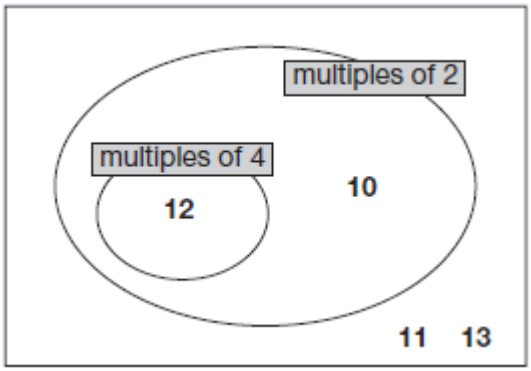
Do not *accept numbers other than those given.*
(Multiple of 3 can be 48 ***OR*** *51)*
(Multiple of 4 can be 48 ***OR*** *52)*

Up to 2
U1

[2]

Q16.

Award **TWO** marks for all four numbers correctly placed as shown:



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

Accept alternative unambiguous indications, eg lines drawn from the numbers to the appropriate regions of the diagram.

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

Up to 2

[2]

Q17.

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'.*

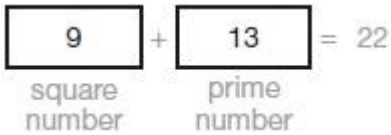
If 'Yes' is circled but a correct, unambiguous explanation is given, then award the mark.

U1

[1]

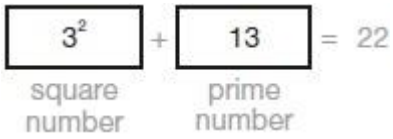
Q18.

Both numbers correct as shown:



Numbers must be in the correct order.

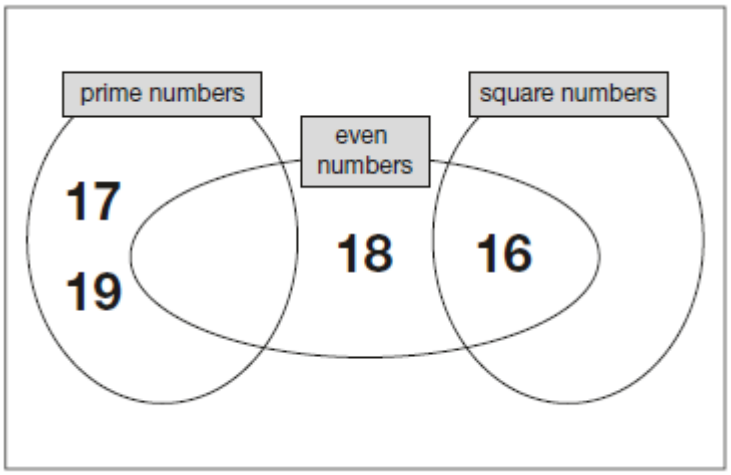
***Do not** accept:*



[1]

Q19.

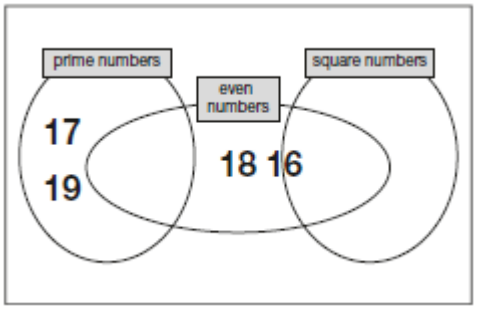
Award **TWO** marks for all four numbers placed correctly as shown:



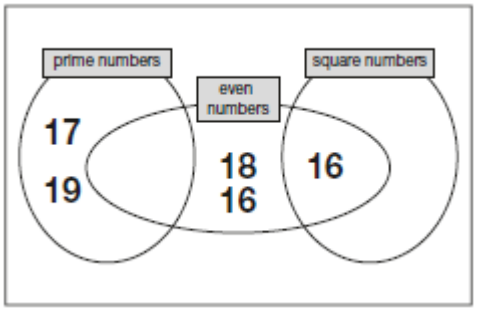
If the answer is incorrect, award **ONE** mark for three numbers placed correctly.

Accept alternative unambiguous indications, e.g. lines drawn from the numbers to the appropriate regions of the diagram.

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



OR



Up to 2m

[2]

Q20.

Award **TWO** marks for a correct number written in each of the four boxes.

	even	not even
a square number	0 **OR** 4 **OR** 16 **OR** 36 **OR** 64	1 **OR** 9 **OR** 25 **OR** 49 **OR** 81
not a square number	even **AND** not a square **AND** less than 100	odd **AND** not square **AND** less than 100

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

Accept more than one number in each box, provided all are correct.

Up to 2

[2]

Q21.

125 and 27, in either order.

Accept 5^3 and 3^3

[1]

Q22.

64

Accept 8^2 and 4^3

[1]

Q23.

Award **TWO** marks for six correct numbers, as shown.

a multiple of 5	3 5
a square number	8 1
a cube number	6 4

Award **ONE** mark for:

- Any two correct that satisfy the criteria in the table.
- Three correct with some duplication of cards.

***Do not** allow the use of other numbers.*

[2]

Q24.

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).*

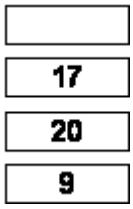
***Do not** accept explanations which include incorrect mathematics or incorrect information that is relevant to the explanation, e.g.*

- *3 × 27 = 87*
- *89 has three factors*
- *no numbers go into 89*

[1]

Q25.

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



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]