

**1**

Circle all the **multiples of 8** in this list of numbers.

[2002]



18

32

56

68

72

[1 mark]

**2**

Here is a number chart.

[2008]

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

Here is the same number chart.

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



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

↑  
THIS ONE!

[2 marks]

3

Here is a diagram for sorting numbers.

[2016S]

Write **one number** in each box.

One is done for you.

	multiple of 5	not a multiple of 5
multiple of 3	30	3
not a multiple of 3	5	2

[MANY OTHER SOLUTIONS]

[2 marks]

4

Write each number in its correct place on the diagram.

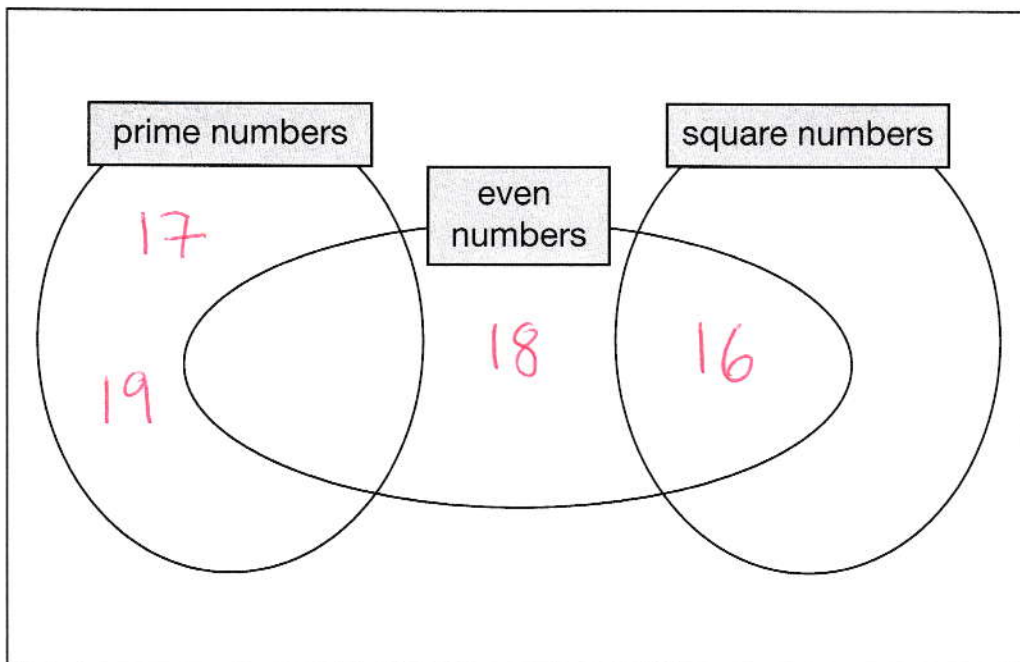
[2016]

16 ✓

17 ✓

18 ✓

19 ✓



[2 marks]

5

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

[2017]

30: ~~1, 2, 3, 5, 6, 10, 15, 30~~ 15: 1, 3, 5, 15

2

6

10

[or 30]

[2 marks]

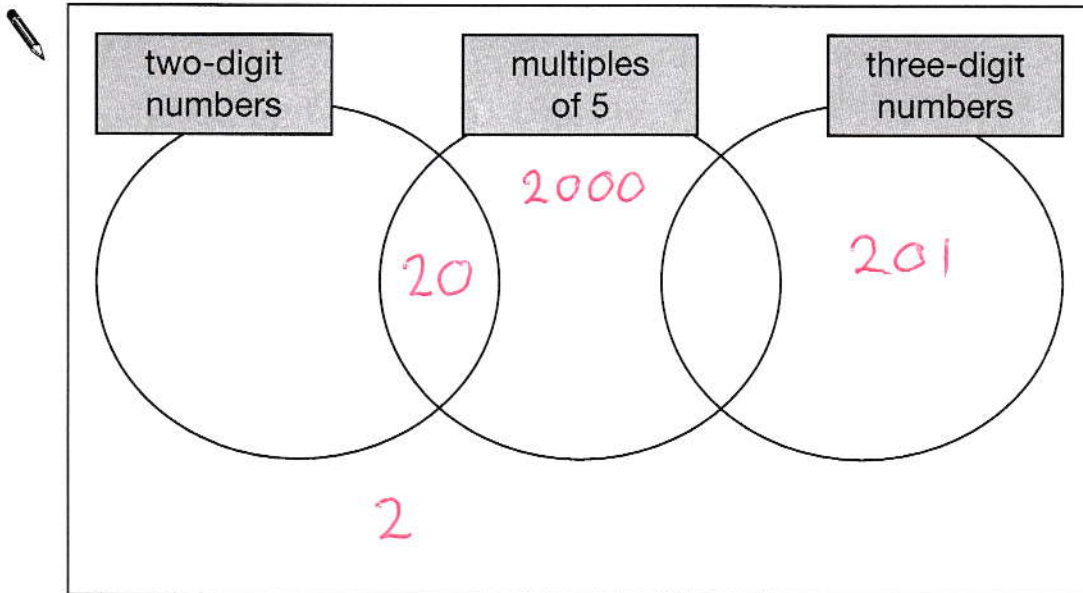
6

Here is a diagram for sorting numbers.

[2014]

Write **each** number in its correct place on the diagram.

2    20    201    2000



[2 marks]

7

36 and 64 are both square numbers.

[2013]

They have a sum of 100

1, 4, 9, 16, 25, 36, 49, 64, 81

Find two **square** numbers that have a sum of 130



49

and

81

[1 mark]

8

Here is a sorting diagram for numbers.

[2004]

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

	even	not even
a square number	16	9
not a square number	2	3

[MANY MORE ANSWERS]

[2 marks]

9

Write the **three prime numbers** which multiply to make **231**

[2001]

$$3 \overline{)231} \begin{array}{l} 77 \\ \underline{21} \\ 21 \\ \underline{21} \\ 0 \end{array}$$

$$\boxed{3} \times \boxed{7} \times \boxed{11} = 231$$

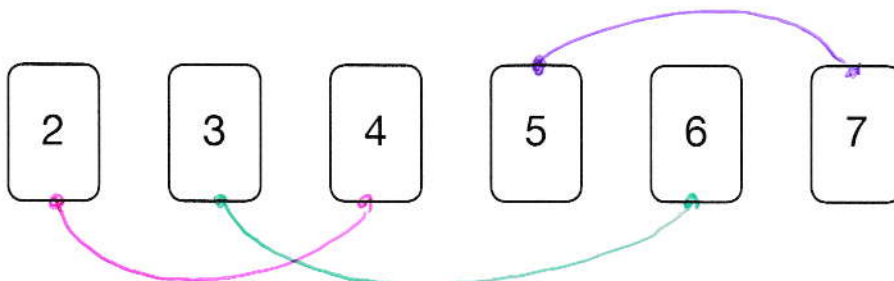
MULTIPLE OF 3!

[1 mark]

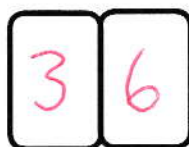
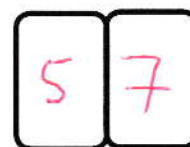
10

Here are six digit cards.

[2010]

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

EACH PAIR MUST ADD TO A MULTIPLE OF 3

multiple of 3  
[OR 42]multiple of 3  
[OR 63]multiple of 3  
[OR 75]

[1 mark]

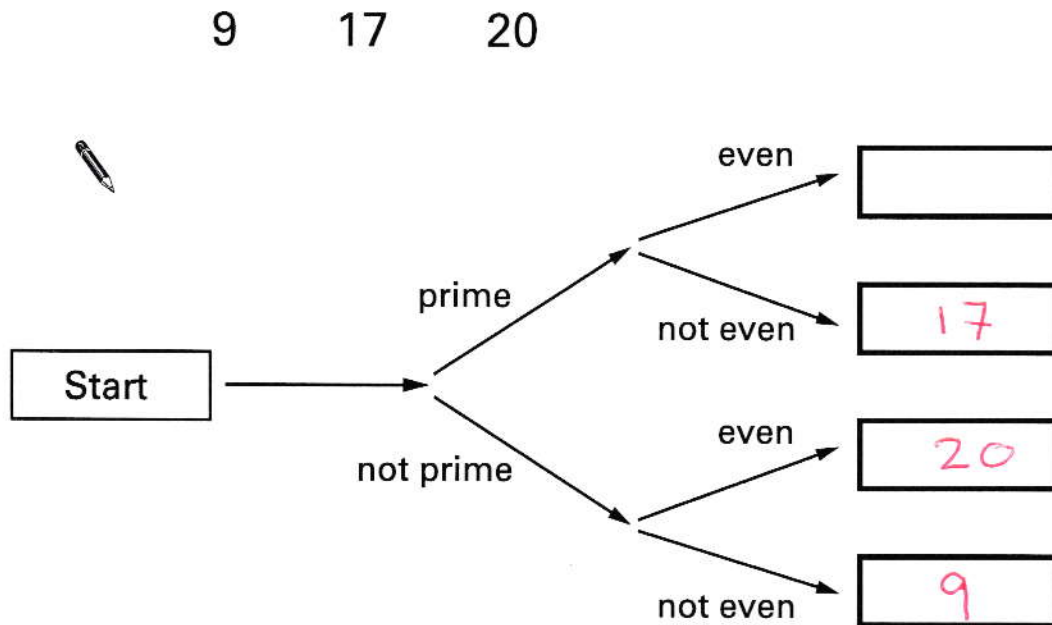
11

Here is a diagram for sorting numbers.

[2001]

Write these three numbers in the correct boxes.

You may not need to use all of the boxes.



[2 marks]

12

Here is a diagram for sorting numbers.

[2010]

Write these five numbers in the correct places on the diagram.

25      247      7002      49      990

	odd	not odd
a 3-digit number	247	990
not a 3-digit number	25 49	7002

[2 marks]

13

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

[2016]

24, 48

[1 mark]

14

Write these numbers in the correct places on the diagram.

[2006]

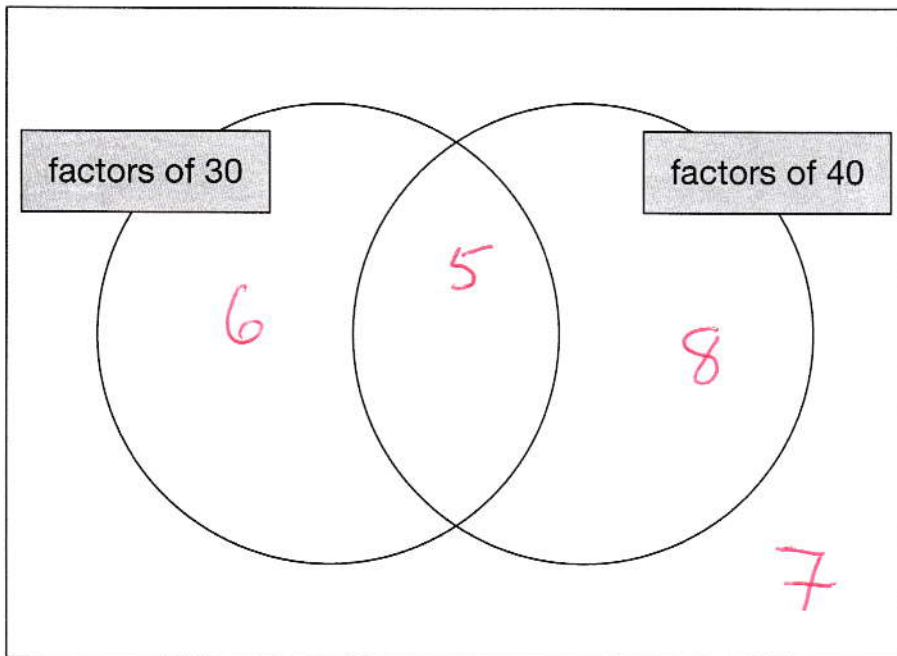
5

6

7

8

$30$   
 $1 \times 30$   
 $2 \times 15$   
 $3 \times 10$   
 $5 \times 6$



$40$   
 $1 \times 40$   
 $2 \times 20$   
 $4 \times 10$   
 $5 \times 8$

[2 marks]

15

Circle the **two** prime numbers.

[2006]



$29$     $39$     $49$     $59$     $69$   
           ↑        ↑        ↑  
            $3 \times 13$     $7 \times 7$     $3 \times 23$


[1 mark]

16

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

[2009]

$\rightarrow 9 \times 20, 10 \times 18, 12 \times 15$

 60, 90

$1 \times 180, 2 \times 90, 3 \times 60, 4 \times 45, 5 \times 36, 6 \times 30$  [1 mark]


17

Here are four labels.

[2008]

even	multiples of 9	not even	not multiples of 9
------	----------------	----------	--------------------

Write each label in the correct position on the sorting diagram below.




	MULTIPLES OF 9	NOT MULTIPLES OF 9
EVEN	72 54	56 84
NOT EVEN	63 45	49 75

[1 mark]

18

Find two square numbers that total 45

[2005]

  $\boxed{9} + \boxed{36} = 45$

$1, 4, 9, 16, 25, 36, \dots$

[1 mark]

Here is a number chart.

[2006]

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
----	----	----	----	----

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

Yes / No

Explain how you know.

BECAUSE IT'S THE MULTIPLES  
OF 3 THAT ARE BEING CIRCLED  
AND 1003 IS NOT A MULTIPLE  
OF 3.



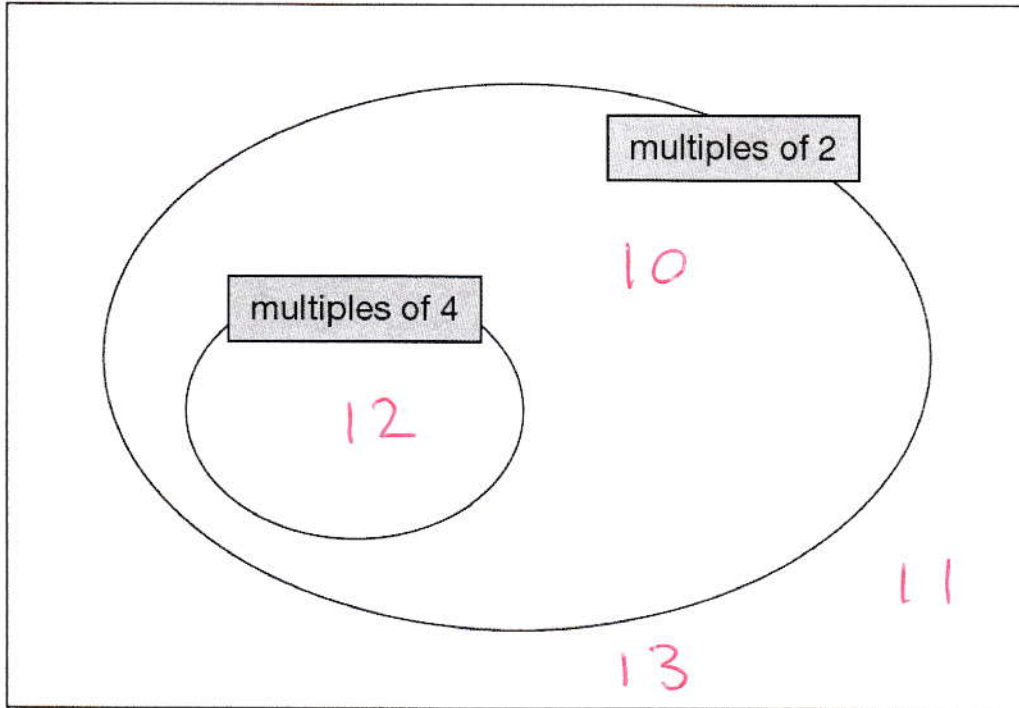
20

Here is a diagram for sorting numbers.

[2012]

Write each number in its correct place on the diagram.

10    11    12    13



[2 marks]

21

364 is a multiple of 7 but not a multiple of 3

364, 371, 378, 385, ...

[2013]

384 is a multiple of 3 but not a multiple of 7

384, 381, 378, 375, ...

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

Show your method

378

[1 mark]

22

Here are four digit cards.

[2003]

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

2 7

[or 72]

a square number

2 5

a factor of 96

1 2

[1x96, 2x48, 3x32, 4x24, 6x16, 8x12]

[2 marks]

23

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

[2005]



..... 1, 2, 5, 10 .....

[30: 1, 2, 3, 5, 6, 10, 15, 30] [20: 1, 2, 4, 5, 10, 20]

[1 mark]

24

17 multiplied by itself gives a **3-digit** answer.

[2005]

$$\begin{array}{|c|c|} \hline 1 & 7 \\ \hline \end{array} \times \begin{array}{|c|c|} \hline 1 & 7 \\ \hline \end{array} = \begin{array}{|c|c|c|} \hline 2 & 8 & 9 \\ \hline \end{array}$$

[I STARTED WITH  
 $30 \times 30 = 900$   
 WHICH WAS  
 TOO SMALL,  
 BUT QUITE  
 CLOSE!]

What is the **smallest** 2-digit number that can be multiplied by itself to give a **4-digit** answer?

$$\begin{array}{|c|c|} \hline 3 & 2 \\ \hline \end{array} \times \begin{array}{|c|c|} \hline 3 & 2 \\ \hline \end{array} = \begin{array}{|c|c|c|c|} \hline 1 & 0 & 2 & 4 \\ \hline \end{array}$$

[2 marks]

25

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

[2017]

What are the two numbers?

$$\begin{array}{|c|} \hline 9 \\ \hline \end{array} + \begin{array}{|c|} \hline 13 \\ \hline \end{array} = 22$$

square  
numberprime  
number

↓  
 1, 4, 9, 16, ...

↓  
 2, 3, 5, 7, 11, 13, 17, 19, ... [1 mark]

26

Lara chooses a **square number**.

[2009]

She rounds it to the nearest hundred.

Her answer is 200



$$10^2 = 100$$

$$11^2 = 121$$

$$12^2 = 144$$

$$13^2 = 169$$

$$14^2 = 196$$

$$15^2 = 225$$

$$16^2 = 256$$

} THESE

Write **all** the possible square numbers Lara could have chosen.

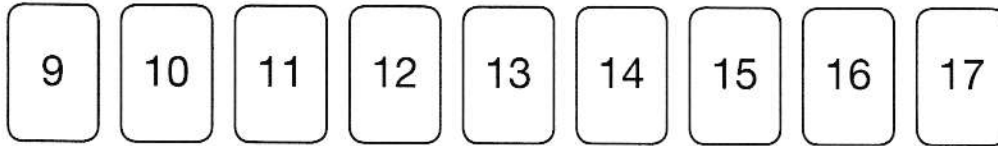
169, 196, 225

[1 mark]

27

Here are some number cards.

[2011]

Joe picks two **even** numbers.Dev picks two **odd** numbers.

Joe gives one of his cards to Dev.

Dev gives one of his cards to Joe.

Joe says,

*'Now my cards are both square numbers.'* → 9 AND 16

Dev says,

*'Now my cards are both multiples of 5.'* → 10 AND 15

What numbers did they each start with?

Joe started with

10

and

16

Dev started with

9

and

15

[2 marks]

28

Circle all the cube numbers.

[New]

5

8

16

25

27

64

[1 mark]

Here is a sorting diagram with four sections, **A**, **B**, **C** and **D**.

[2006]

	multiple of 10	not a multiple of 10
multiple of 20	<b>A</b>	<b>B</b>
not a multiple of 20	<b>C</b>	<b>D</b>

Write a number that could go in section **C**.



10

[OR 30, 50, 70, ...]

Section **B** can never have any numbers in it.

Explain why.

BECAUSE IF A NUMBER IS  
A MULTIPLE OF 20, THEN  
IT MUST ALSO BE A MULTIPLE  
OF 10.

[2 marks]

30

This four digit number is a **square number**.

[2001]

Write in the missing digits.

$$\begin{array}{r}
 97 \\
 \times 97 \\
 \hline
 679 \\
 8730 \\
 \hline
 \end{array}$$

9	4	0	9
---	---	---	---

↑  
LAST DIGIT IS 9 SO  $3 \times 3 = 9$  [1 mark]  
 $7 \times 7 = 49$

[ I KNEW THAT  
 $100 \times 100 = 1000$   
 SO THE ANSWER  
 HAD TO BE A BIT  
 LESS THAN 100! ]

31

Write **one** number which fits **all three** of these statements.

[2007]

It is a multiple of 4 → 4, 8, 12, 16, 20, 24, 28, 32, ...

It is a multiple of 6 → 6, 12, 18, 24, 30, 36, 42, 48, ...

It ends in '8'

↑  
THIS ONE!

48
----

Explain why a number which ends in '3' **cannot** be a multiple of 4

BECAUSE MULTIPLES OF FOUR  
 ARE ALWAYS EVEN.

[2 marks]

32

Find the multiple of 45 that is closest to 8000

[2008]

Show your method

$$\begin{array}{r}
 10 \\
 \times 45 \\
 \hline
 450
 \end{array}
 \quad
 \begin{array}{r}
 20 \\
 \times 45 \\
 \hline
 900
 \end{array}
 \quad
 \begin{array}{r}
 200 \\
 \times 45 \\
 \hline
 9000
 \end{array}$$

$$9000 - 900 = 8100$$

8010

→ START HERE → 8100, 8055, 8010, 7965

[1 mark]

33

John says,

[2004]

**'Every multiple of 5 ends in 5'**

Is he correct?

Circle Yes or No.

Yes / No

Explain how you know.

10, 20 AND 30 ARE MULTIPLES  
OF 5 BUT END IN A ZERO!

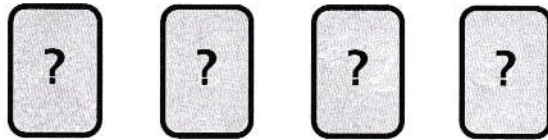
[1 mark]

34

Debbie has a pack of cards numbered from 1 to 20

[2003]

She picks four different number cards.



TWO NUMBERS MUST BE EVEN AND MULTIPLES OF 5

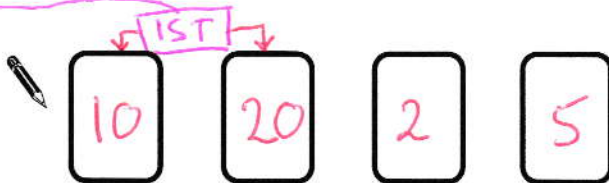
Exactly three of the four numbers are multiples of 5  $\rightarrow 5, 10, 15, 20, 25, 30, \dots$

Exactly three of the four numbers are even numbers.

$\rightarrow 2, 4, 6, 8, 10, 12, \dots$  ECT.

All four of the numbers add up to less than 40

Write what the numbers could be.



[1 mark]

35

P stands for a **multiple of 3**

[2001]

Q stands for a different **multiple of 3**

Tick ( $\checkmark$ ) each statement according to whether it is **always true**, **sometimes true** or **never true**.



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**

	always true	sometimes true	never true
The sum of P and Q is a multiple of 6		$\checkmark$	
The difference between P and Q is a multiple of 3	$\checkmark$		
The product of P and Q is a multiple of 9	$\checkmark$		

$3 + 6 = 9 \times$   
 $3 + 9 = 12 \checkmark$

[2 marks]