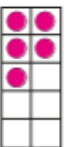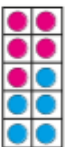# Maths answers

Monday

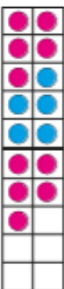## Multiples

1 What numbers are represented?
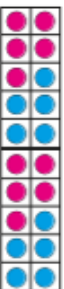
|5|
|10|
|15|
|20|

Complete the sentence.

These numbers are all ___multiples___ of 5

2 Complete the number track.

| 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 |

3 a) List all the multiples of 2 up to 20

2, 4, 6, 8, 10, 12, 14, 16, 18, 20

b) List all the multiples of 4 up to 20

4, 8, 12, 16, 20

c) What do you notice about the multiples of 2 and 4?

All multiples of 4 are even

d) Is the number 47 a multiple of 4? No

Explain how you know.

4 a) Circle all the multiples of 3

23   (6)   13   (18)   (21)   32

b) The table shows four more multiples of 3

Multiple of 3	75	126	432	9,735
Sum of the digits	12	9	9	24

What do you notice about the sum of the digits in each number?

They are multiples of 3

Monday

5 Multiples of 5 always have a 5 in the number.

Is the statement true or false? false

Explain your answer.

10 is a multiple of 5 and doesn't have a 5 in the number.

6 Which number is the odd one out?

Tick your answer.

| 8 | 56 | 6 | 16 |

Explain to a partner why it is the odd one out.

Various answers e.g.

7 Here is part of a hundred square.

11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

a) Colour the multiples of 3

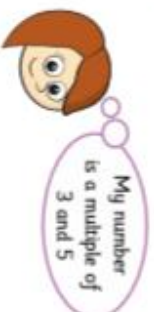b) Draw a circle around all the multiples of 2

c) Some numbers have been coloured and circled.
What do you notice about these numbers?

8 Rosie and Jack are each thinking of a number.

My number is a multiple of 3 and 5

My number is a multiple of 2 and 10

Could they be thinking of the same number? ___Yes___

Explain your answer.

They could be thinking a 30 60 etc

9 Scott's age is a multiple of 8 and 12

His age is one away from a multiple of 7

He is younger than 50 years old.

How old is Scott?

48

10 Write the multiples of 15 between 250 and 350

255   270   285   300   315   330   345

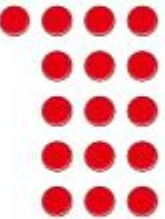Compare answers with a partner to make sure you have them all.

Tuesday

1 Alex arranges 16 counters in different ways.
She is trying to work out some factors.

a) Use the array to complete the sentence.

2 and 8 are both factors of 16
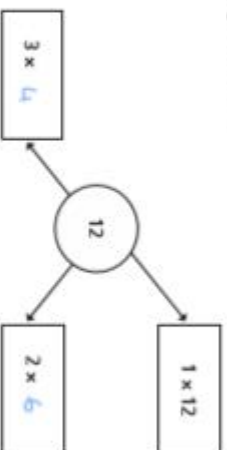
b) Alex rearranges the counters.

How does this array show that 5 is not a factor of 16?

The bottom row isn't complete

2 Use 20 counters.

a) Show that 2 and 10 are factors of 20

b) Rearrange the counters to show why 4 and 5 are also factors of 20

c) Show why 6 is not a factor of 20

3 a) Complete the diagram to show the pairs of numbers that multiply to make 12

3×4

12

2×6

1×12

List all the factors of 12

1, 2, 3, 4, 6, 12

b) Draw a similar diagram to show the pairs of numbers that multiply to make 24

24

4×6

3×8

1×24

2×12
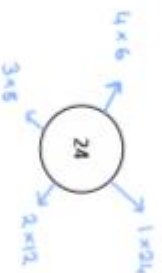
List all the factors of 24

1, 2, 3, 4, 6, 8, 12, 24

4 a) List all the factors of 32

1, 2, 4, 8, 16, 32

b) How can you check that you have found all the factors?

5 a) Circle the factors of 30

(5) (15) 25 (3) (30) 4 (2) 12 60 0

b) These numbers are all factors of a 2-digit number.

1   3   5   9

What could the number be? 45

6 Amir and Eva are describing numbers using factors.

Amir: The number 11 does not have any factors.

Eva: My number lies between 20 and 25. It only has two factors.

a) Is Amir correct? No
Explain your answer.
$1 \times 11 = 11$ so 1 and 11 are factors

b) What number is Eva thinking of? 23

7 Which number has the most factors? Tick your answer.

64   48 ✓

8 Look at each statement.
Explain the mistakes that have been made.

a) 20, 30 and 40 are all factors of 10

There are multiple not factors

b) 0.5 is a factor of 8 as 16 halves equals 8

Factors have to be integers

9 How do we know that these statements are true?

a) 5 is a factor of 195 but not a factor of 196
195 ends in 5 so 5 is a factor. 196 is one more than a multiple of 5 so 5 isn't a factor

b) 3 is a factor of 177 but not a factor of 178
$1 + 7 + 7 = 15$ 15 is a multiple of 3 so 3 is a factor of 177. 178 is not a factor of 178

c) 20 is a factor of 180 but not a factor of 190
$180 \div 20 = 9$ 190 is 10 more than 180 so 20 can't be a factor

10 Is this statement always, sometimes or never true?
A number will always have an even number of factors because factors come in factor pairs.

Wednesday

Common factors

1 Kim is using counters to find factors of 18

She arranges the counters in one row.

Then she arranges the counters in two rows.

a) Kim's array shows four numbers that are factors of 18
Which numbers are they?

| 1 | 2 | 9 | 18 |

b) What are the two other factors of 18?

| 3 | 6 |

c) Use counters to find the factors of 27
List the factors of 27

1   3   9   27

d) List the common factors of 18 and 27

1   3   9

Why are these numbers common factors?

2 Complete the sentences.

a) The factors of 24 are 1, 2, 3, 4, 6, 8, 12, 24

The factors of 36 are 1, 2, 3, 4, 6, 9, 12, 18, 36

The common factors of 24 and 36 are 1, 2, 3, 4, 6, 12

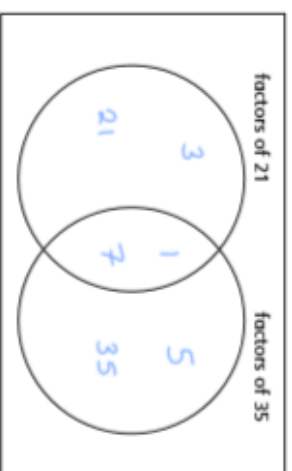b) The factors of 30 are 1, 2, 3, 5, 6, 10, 15, 30

The factors of 45 are 1, 3, 5, 9, 15, 45

The common factors of 30 and 45 are 1, 3, 5, 15

3

a) Write the numbers on the diagram.

1   3   5   7   21   35

b) What are the common factors of 21 and 35?

1, 7

c) How does the Venn diagram help you to list the common factors?

factors of 21   factors of 35

3   21   1   7   5   35

Wednesday

4 List the common factors of each pair of numbers.

a)

15	20

1, 5

b)

9	10

1

5 Circle the pairs of numbers that have only one common factor.

2 and 6   3 and 8   15 and 12

9 and 11   49 and 21   15 and 22

What do you notice?

6 Do you agree with Mo? _Yes_

Explain your reasoning.

All the factors of 36 are common factors of 36 and 72

36 is a factor of 72 therefore all of its factors
are factors of 72

Why do you think this happens?

7 a) List the factors of 60 in order from lowest to highest.

_1 2 3 4 5 6 10 12 15 20 30 60_

b) List the factors of 84 in order from smallest to greatest.

_1 2 3 4 6 7 12 21 28 42 84_

c) What is the highest common factor of 60 and 84?

12

8 Whitney bakes 24 cakes.
Dexter bakes 30 cakes.
Boxes can hold 2, 3, 4, 5, 6 or 10 cakes.
Whitney and Dexter want to share their cakes equally into boxes.

a) Which boxes could Whitney use?

_2 3 4 6_

b) Which boxes could Dexter use?

_2 3 5 6 10_

c) Which boxes could they both use?

_2 3 6_

Compare answers with a partner.

9 *I am thinking of two numbers between 70 and 80. The common factors are 1, 2, 4 and 8*

What are the two numbers that Teddy is thinking of?

72	and	80

Friday

Prime numbers

1 Aisha makes different arrays with 7 counters.

She makes an array with 1 counter in each column.

She makes an array with 2 counters in a column.

a) Is it possible to arrange the counters in another way so that they make a rectangular array?

Draw counters to support your answer.   No

O O O O O   O O O   O O O
O O   O O O O O   O O O   O O   etc.
O

b) What are the factors of 7?

[1] and [7]

c) Explain why 7 is a prime number.

It only has two factors, 1 and itself.

2 Complete the table.

Number	Factors	Is the number prime?
5	1 and 5	Yes
9	1, 3, 9	No
11	1, 11	Yes
14	1, 2, 7, 14	No
15	1, 3, 5, 15	No
19	1, 19	Yes

3 A prime number has two factors: 1 and itself.

List the prime numbers up to 20

2, 3, 5, 7, 11, 13, 17, 19

4 Is 25 a prime number? No

How do you know?

5 × 5 = 25

5 Here are sequences of consecutive prime numbers.

Complete the sequences.

a) 7, 11, 13, [17], 19

b) 37, 31, 29, [23], 19

Friday

6 Colour all the prime numbers.

51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80

7 Here are some numbers.

126   175   2,378   777   381   9,000

Jack: The numbers are big. It's hard to check if they are prime.

Annie: I can tell quickly that none of these numbers are prime.

How does Annie know that none of the numbers are prime?

126, 2378 and 9000 have 2 as a factor so
are not prime. 175 has 5 as a factor. 777 has
7 as a factor. 3+8+1 = 12 so 3 is a
factor of 381

Compare answers with a partner.

8 Mo and Alex are talking about prime numbers.

Mo: Prime numbers are always odd.

Alex: I think prime numbers can be even.

Who is correct? _Alex_

How do you know?

2 is even and prime. It is the only even
prime number.

9 Teddy writes five consecutive numbers.
Three of the numbers are prime.
What are the five consecutive numbers?

2 , 3 , 4 , 5 , 6

10 Kim is thinking of a prime number.
It is in between a multiple of 11 and a factor of 48
What number is Kim thinking of?