Monday 17.10.22

MPI: Finding common multiples

Colour all the multiples of 9

Circle all the multiples of 6

1	2	3	4	5	6	7	8	9	10
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
41	42	43	44	45	46	47	48	49	50
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
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Continue the lists of multiples.

Multiples of 5

5, 10, 15, ☐, ☐, ☐, ☐, ☐, ☐, ☐, ☐, ☐, ☐, ☐, ☐

Multiples of 7

7, 14, 21, ☐, ☐, ☐, ☐, ☐, ☐, ☐, ☐, ☐, ☐, ☐

Circle the common multiples of 5 and 7

List any common multiples of 9 and 6

_____

Write the first five common multiples of these numbers.

a) 2 and 3

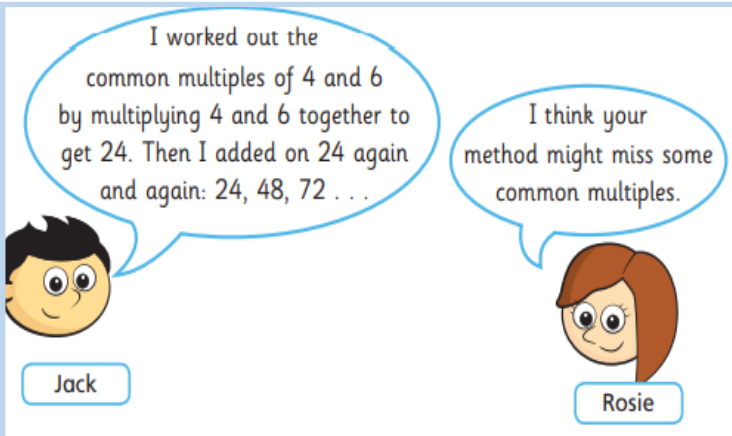
_____

b) 3 and 12

_____

c) 15 and 10

_____



Who do you agree with and why?

_____

_____

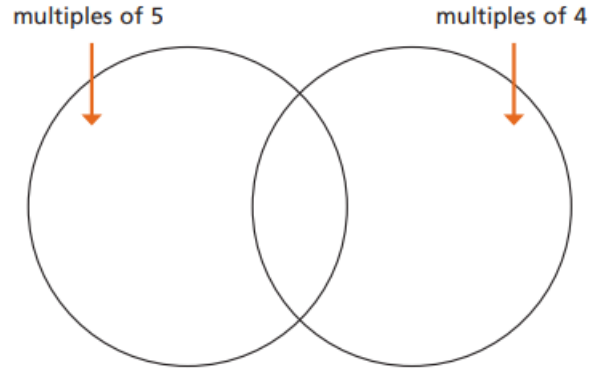
_____

Monday 17.10.22

MPI: Finding common multiples

Write the numbers in the sorting diagram.

25 30 16 20 24 60 75 40



Write all the common multiples of 4 and 5 from the list.

_____

Look at the common multiples of 4 and 5. What do you notice?

Describe how to find more common multiples to add to this list.

Could you ever run out of common multiples?

Journal your answers in your Maths book.

Rita has 2 grandchildren in different years at school.

On Rita's 90th birthday she says to her grandchildren,

"My age is a multiple of both your ages today."

How old could Rita's grandchildren be?

Describe two different solutions.

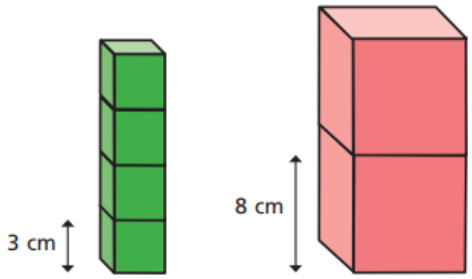
_____

_____

_____

What is the lowest common multiple of 6 and 8?

_____



Scott is building a tower from blocks 3 cm tall.

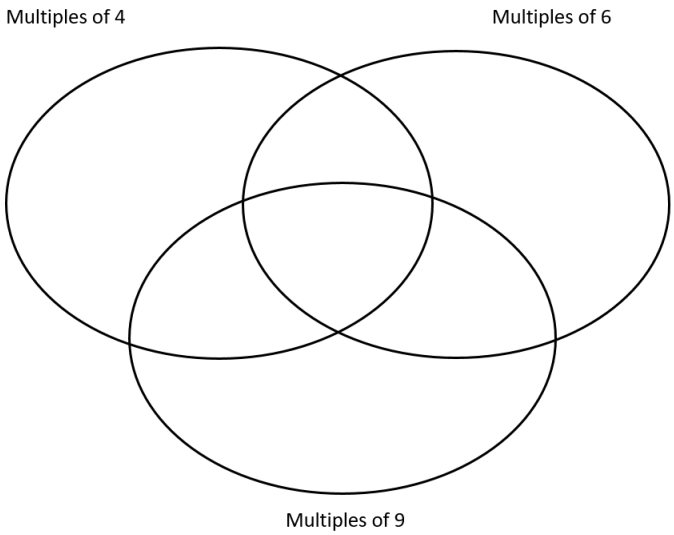
Dora is building a tower from blocks 8 cm tall.

They each build a tower taller than 50 cm, but shorter than 1 m.

The towers are exactly the same height.

How tall could the towers be?

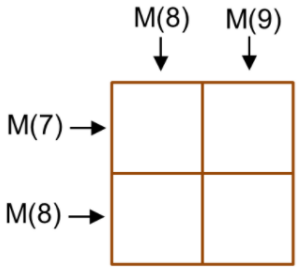
Put at least 3 numbers into each region. Include the lowest common multiple.

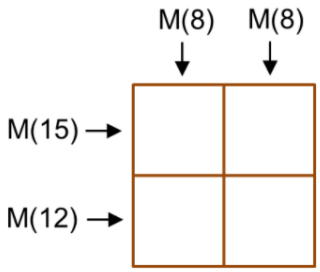


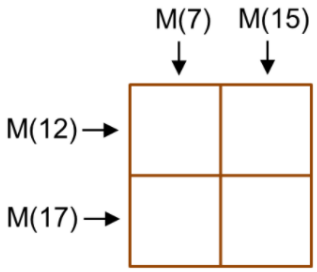
Monday 17.10.22

BONUS CHALLENGE

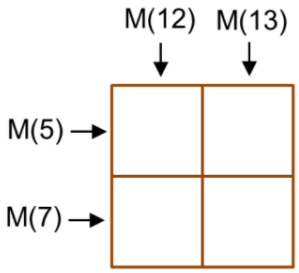
M(15) means the number must be a multiple of 15 i.e. 15 or 30 or 45 or 60 or 75 or 90
find four digits (all differenet) to go in each of the boxes to make 2-digit multiples of the required number when you read across and down:

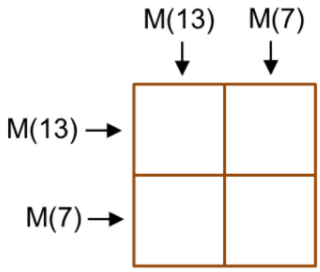




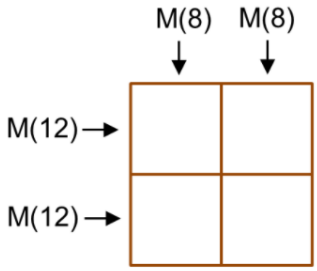


all the 4 digits in each problem should be different





3 solutions possible



3 solutions possible

Monday 17.10.22

BONUS CHALLENGE

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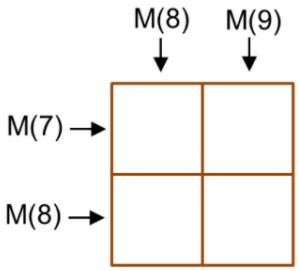

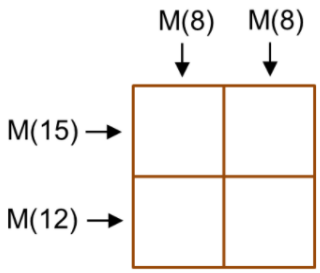

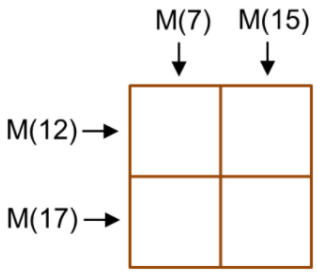

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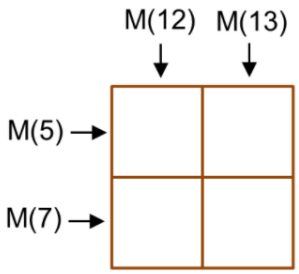
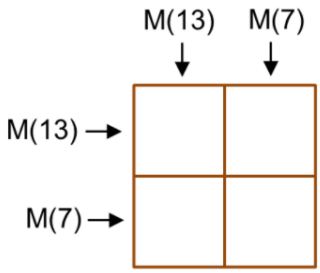
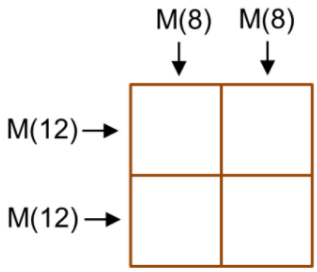




3 solutions possible



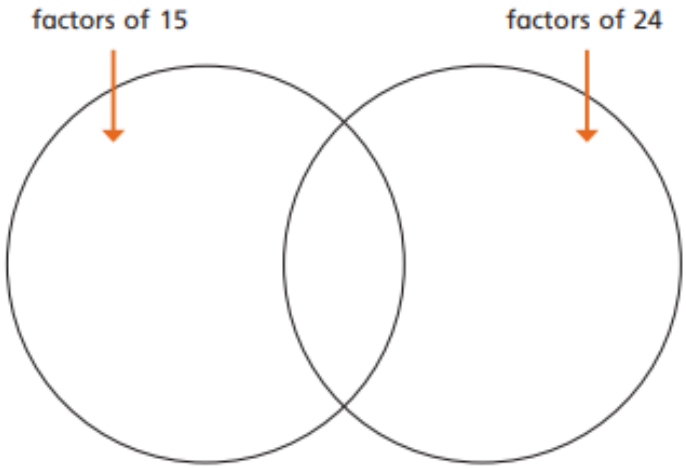
3 solutions possible

Tuesday 18.10.22

MPI: Finding common factors

Write the numbers in the sorting diagram.

1 2 3 4 5 6 8 12 15 24



Complete the sentence.

The common factors of 15 and 24 are _____

Complete the table.

Factor pairs of 50	Factor pairs of 75	Factor pairs of 100
1 × 50 2 × 25 5 × 10	1 ×	

What are the common factors of 18 and 24?

_____

List 3 common factors of 360 and 180 that are greater than 50

_____

Find the common factors of each pair of numbers.

a) 12 and 20

_____

b) 16 and 25

_____

c) 20 and 50

_____

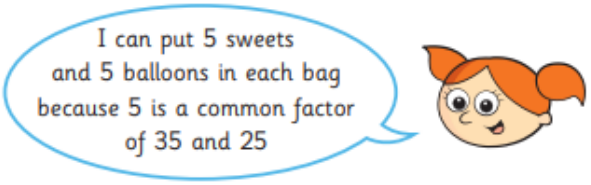
d) 20 and 60

_____

Alex is making party bags.

She has 35 sweets and 25 balloons.

The sweets and balloons need to be shared equally, so that each bag has the same number of sweets and balloons.



Is Alex correct? _____

Explain your answer.

_____

_____

Tuesday 18.10.22

BONUS CHALLENGE

a number has 4 factors, one of which is 9, what is it?

a number is one less than a square number; it has 4 factors, one of which is 5; what could it be?

a number has 4 factors, two of which add up to 10, what could it be? how many numbers could it be?

what types of number have exactly 4 factors? why?

Tuesday 18.10.22

BONUS CHALLENGE

a number has 4 factors, one of which is 9, what is it?

a number is one less than a square number; it has 4 factors, one of which is 5; what could it be?

a number has 4 factors, two of which add up to 10, what could it be? how many numbers could it be?

what types of number have exactly 4 factors? why?

Wednesday 19.10.22

MPI: Finding prime numbers and factors

Circle the prime numbers in each list.

a) 1 2 3 4 5 6 7

b) 17 22 9 36 21 35 23

c) 10 18 38 74 92 2 14

1	2	3	4	5	6	7	8	9	10
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
41	42	43	44	45	46	47	48	49	50

Cross out all the numbers that are **not** prime numbers.

List the prime numbers between 0 and 50

Write ten numbers in the sorting diagram. Each section must have at least one number.

	Even	Not even
Prime		
Not prime		

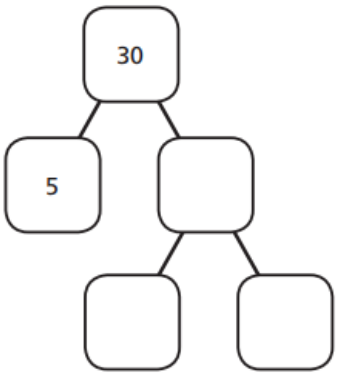
= 100

Both and are prime numbers.

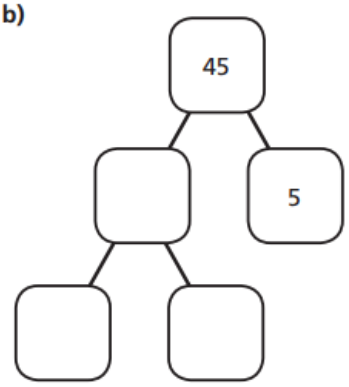
How many different solutions can you find?

Complete the prime factor trees.

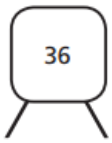
a)



b)



c)



d)

Wednesday 19.10.22

BONUS CHALLENGE

Place the numbers 1, 2, 3,..., 9 one on each square of a 3 by 3 grid so that all the rows and columns add up to a prime number. Two solutions are considered to be the same if, as in the example shown, they contain the same six triples. How many different solutions can you find?

2	8	3
6	4	9
5	7	1

2	3	8
5	1	7
6	9	4

Show that it is impossible to place the numbers 1, 2, 3,..., 9 one on each square of a 3 by 3 grid so that the diagonals, as well as all the rows and columns, add up to prime numbers.

Wednesday 19.10.22

BONUS CHALLENGE

Place the numbers 1, 2, 3,..., 9 one on each square of a 3 by 3 grid so that all the rows and columns add up to a prime number. Two solutions are considered to be the same if, as in the example shown, they contain the same six triples. How many different solutions can you find?

2	8	3
6	4	9
5	7	1

2	3	8
5	1	7
6	9	4

Show that it is impossible to place the numbers 1, 2, 3,..., 9 one on each square of a 3 by 3 grid so that the diagonals, as well as all the rows and columns, add up to prime numbers.

Thursday 20.10.22

MPI: Investigating prime numbers: Challenge 1

the primes less than 100

1	2	3	4	5	6	7	8	9	10
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
41	42	43	44	45	46	47	48	49	50
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
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

find two primes that sum to a multiple of 6

find two primes that have a difference of 6

find two primes that add up to 54

which decade (less than 100) has least primes in?

find primes that are one more than a multiple of 6

find primes that are one less than a multiple of 6

twin primes are two apart e.g. 41 and 43

what is a common property of twin primes?

Thursday 20.10.22

MPI: Investigating prime numbers: Challenge 2

(a) find two prime numbers that sum to:

(1) 4
(2) 14
(3) 24
(4) 34
(5) 44
(6) 54

note that 1 is not a prime number

you may use the same prime number twice e.g. 34 = 17 + 17

(b) find two prime numbers that sum to:

(1) 24
(2) 30
(3) 36
(4) 42
(5) 48
(6) 54

does a pattern continue?

Thursday 21.10.21

MPI: Investigating prime numbers: Challenge 2

(a) find two prime numbers that sum to:

(1) 4
(2) 14
(3) 24
(4) 34
(5) 44
(6) 54

note that 1 is not a prime number

you may use the same prime number twice e.g. 34 = 17 + 17

(b) find two prime numbers that sum to:

(1) 24
(2) 30
(3) 36
(4) 42
(5) 48
(6) 54

does a pattern continue?