Common Multiples

A **multiple** is a product of one number multiplied by another number.

A **common multiple** is a multiple that is common to two or more numbers.

A **representation** refers to a number that has been shown in different ways.

What are the common multiples of 6 and 9? What strategy could we use to work this out?

We could list the multiples so that we can compare them.

Here we have the multiples of 6 and 9 up to their tenth multiple.

6, 12, 18, 24, 30, 36, 42, 48, 54, 60

9, 18, 27, 36, 45, 54, 63, 72, 81, 90

Can you see any common multiples?

What are the common multiples of 6 and 9 up to their tenth multiple?

We can identify the common multiples by looking at which multiples appear in both lists.

6, 12, 18, 24, 30, 36, 42, 48, 54, 60

9, 18, 27, 36, 45, 54, 63, 72, 81, 90

We can now see that the common multiples of 6 and 9 up to their tenth multiple are 18, 36 and 54.

Are these the only common multiples of 6 and 9?

What is the lowest common multiple of 5 and 7?

If we are asked what the lowest common multiple of two numbers are, we are being asked to find the smallest common multiple of those two numbers.

5, 10, 15, 20, 25, 30, 35, 40, 45, 50

7, 14, 21, 28, 35, 42, 49, 56, 63, 70

The lowest common multiple of 5 and 7 is 35. We can use the strategy of multiplying the two numbers together here, as 5 x 7 = 35. But does this strategy work for any pair of numbers?

1. Circle the common multiples of 4 and 7.

28 42 56

148 112 77

Key Facts	
4 x 2 = 8	7 x 2 = 14
4 x 5 = 20	7 x 5 = 35
4 x 10 = 40	7 x 10 = 70
4 x 12 = 48	7 x 12 = 84

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2. Tick the lowest common multiple of 8 and 12.

A. 96 ☐ B. 24 ☐ C. 20 ☐

Key Facts	
8 x 2 = 16	12 x 2 = 24
8 x 5 = 40	12 x 5 = 60
8 x 10 = 80	12 x 10 = 120
8 x 12 = 96	12 x 12 = 144

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3. Circle the next 3 common multiples of 3 and 5.

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

Key Facts	
3 x 2 = 6	5 x 2 = 10
3 x 5 = 15	5 x 5 = 25
3 x 10 = 30	5 x 10 = 50
3 x 12 = 36	5 x 12 = 60

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4. Move from start to finish by following the common multiples of 5 and 7. You cannot move diagonally.

START

35	210	350	355	70
315	49	105	245	280
175	70	55	70	149
205	210	21	140	250
28	35	357	280	315

FINISH

Key Facts
5 x 2 = 10
5 x 5 = 25
5 x 10 = 50
5 x 12 = 60

Key Facts
7 x 2 = 14
7 x 5 = 35
7 x 10 = 70
7 x 12 = 84

PS

5. Below are 5 common multiples of 3 and 4. What numbers could be covered by the splats?

24

132

60

Key Facts	
3 x 2 = 6	4 x 2 = 8
3 x 5 = 15	4 x 5 = 20
3 x 10 = 30	4 x 10 = 40
3 x 12 = 36	4 x 12 = 48

PS

6. Harvey says,

The lowest common multiple of 6 and 9 is 54 because 6 x 9 = 54.

Is he correct? Explain why.

Key Facts	
6 x 2 = 12	9 x 2 = 18
6 x 5 = 30	9 x 5 = 45
6 x 10 = 60	9 x 10 = 90
6 x 12 = 72	9 x 12 = 108

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Zargle and Bleeblox are alien friends from different planets. They were born on the same day and can live to be 1,000 years old! However, they don't celebrate their birthdays every year.

Bleeblox Zargle

They'd like to throw a party together. Investigate how many years it could be before they both celebrate their birthdays in the same year. Find 5 possible answers.

They have another friend, Glarbol, who also shares the same birthday. If Glarbol was to share the birthday party too, how many times could all three aliens celebrate their birthdays together in the same year?

Glarbol

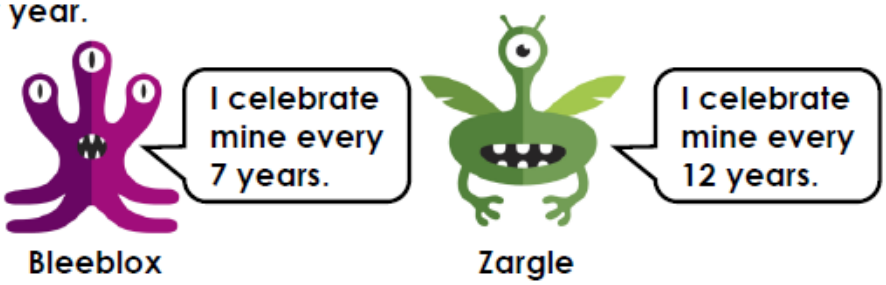
Answers

1. 28, 56 and 112
2. B. 24
3. 60, 75 and 90
4.

35	210	350	355	70
315	49	105	245	280
175	70	55	70	149
205	210	21	140	250
28	35	357	280	315

5. Various answers, for example: 72 and 108.
6. Harvey is not correct because 6 x 3 = 18 and 2 x 9 = 18. The lowest common multiple of 6 and 9 is 18.

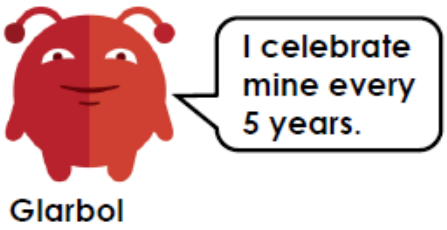
Zargle and Bleeblox are alien friends from different planets. They were born on the same day and can live to be 1,000 years old! However, they don't celebrate their birthdays every year.



They'd like to throw a party together. Investigate how many years it could be before they both celebrate their birthdays in the same year. Find 5 possible answers.

Various answers, for example: Zargle and Bleeblox could celebrate their birthdays together after 84, 168, 252, 336 or 420 years. Accept any multiple of 84 up to 1,000.

They have another friend, Glarbol, who also shares the same birthday. If Glarbol was to share the birthday party too, how many times could all three aliens celebrate their birthdays together in the same year?



All three aliens could only celebrate their birthdays twice together after 420 years or 840 years, as they only live to 1,000 and the next common multiple of 5, 7 and 12 is 1,260.