

Explain a table pattern using properties of operations

NAME	DATE	SCORE / 10
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1 Every number in the 5s row of the times table ends in 0 or 5. Why must this be true?

- ☐ 5 is an odd number.
- ☐ Every two 5s make a ten, so each number is tens, or tens and one more 5.
- ☐ The first four numbers end in 0 or 5, so they all do.
- ☐ Each number is 10 more than the number before it.

2 Every number in the 5s row of the times table ends in 0 or 5. Explain why this must be true.

3 In the 4s row of the addition table, each number is 1 more than the number before it. Why must this be true?

- ☐ 4 is less than 10. ☐ 4 stays the same, and the number added to it gets 1 bigger each time.
- ☐ Adding always makes a number 1 bigger.
- ☐ The first few numbers go up by 1, so the rest will too.

4

Every number in the 10s row of the times table is even. Explain why this must be true.

5

Every number in the 6s row of the times table is even. Why must this be true?

- ☐ The numbers in the row get bigger each time.
- ☐ The first five numbers in the row are even, so all of them are.
- ☐ Each number is 6 equal groups, which split into two halves of 3 groups.
- ☐ 6 is a small number.

6

In the 6s row of the addition table, each number is 1 more than the number before it. Explain why this must be true.

7

In the times table, 5×6 and 6×5 are both 30. Why must this be true?

- ☐ We checked 5×6 and 6×5 , and they came out the same.
- ☐ The bigger number always comes first. ☐ Multiplying always makes an even number.
- ☐ An array of 5 rows of 6, turned on its side, is 6 rows of 5.

8

In the times table, 7×6 and 6×7 are both 42. Explain why they must be the same.

9

Every number in the 2s row of the times table is even. Why must this be true?

- ☐ The first five numbers in the row are even, so all of them are. ☐ 2 is a small number.
- ☐ Each number is 2 equal groups, which split into two halves of 1 group.
- ☐ The numbers in the row get bigger each time.

10

Every number in the 6s row of the times table is even. Explain why this must be true.

Explain a table pattern using properties of operations

1 Every two 5s make a ten, so each number is tens, or tens and one more 5.

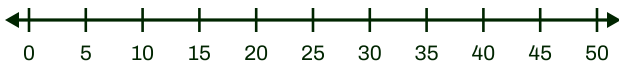
3 4 stays the same, and the number added to it gets 1 bigger each time.

5 Each number is 6 equal groups, which split into two halves of 3 groups.

7 An array of 5 rows of 6, turned on its side, is 6 rows of 5.

9 Each number is 2 equal groups, which split into two halves of 1 group.

2 A written explanation



A model answer: Every two 5s make a ten. So an even number of 5s is a number of whole tens, which ends in 0, and an odd number of 5s is whole tens and one more 5, which ends in 5.

What counts as right: Counts as right if it makes these points: (1) two 5s make a ten; (2) so any number of 5s is whole tens, or whole tens and one 5 left over; (3) so it ends in 0 or in 5. Checking more numbers in the row, or “it worked for the first few”, does not count: that shows it is true for those, not why it must be.

4 A written explanation



A model answer: Each number in the 10s row is 10 equal groups (10×1 , 10×2 , $10 \times 3 \dots$). 10 groups split into two halves of 5 groups, so every number in the row splits into two equal halves, and a number that splits into two equal halves is even.

What counts as right: Counts as right if it makes these points: (1) each number in the row is 10 equal groups, or groups of 10; (2) 10 is even, so the groups split into two equal halves, whatever the size of each group; (3) so every number in the row is even. Checking more numbers in the row, or “it worked for the first few”, does not count: that shows it is true for those, not why it must be.

6

A written explanation

The 6s row of the addition table

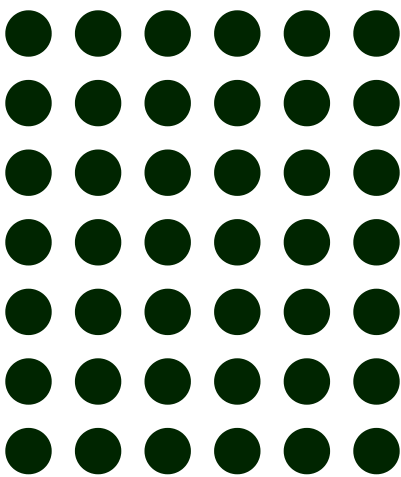
	1	2	3	4	5	6	7	8	9	10
6 +	7	8	9	10	11	12	13	14	15	16

A model answer: The row is 6 + 1, 6 + 2, 6 + 3 and so on. 6 stays the same and the number added to it gets 1 bigger each time, so each sum is 1 more than the one before.

What counts as right: Counts as right if it makes these points: (1) every number in the row is 6 plus another number; (2) 6 stays the same and the other number goes up by 1 each time; (3) so each sum goes up by 1. Checking more numbers in the row, or “it worked for the first few”, does not count: that shows it is true for those, not why it must be.

8

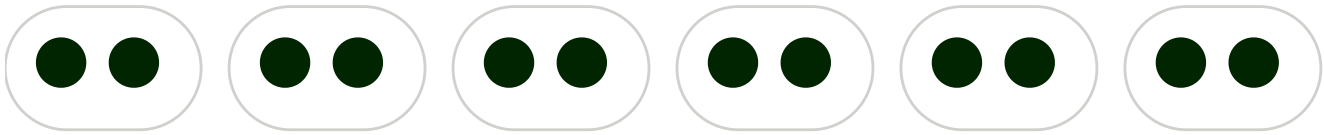
A written explanation



A model answer: An array of 7 rows of 6 has 7×6 dots. Turned on its side, the same array is 6 rows of 7, which is 6×7 . No dots are added or taken away, so the two products are the same.

What counts as right: Counts as right if it makes these points: (1) 7×6 is an array of 7 rows of 6; (2) turned on its side, the same dots are 6 rows of 7, which is 6×7 ; (3) so the two must be equal, and this works for any two numbers. “We worked both out and they came out the same” does not count.

10 A written explanation



A model answer: Each number in the 6s row is 6 equal groups (6×1 , 6×2 , $6 \times 3 \dots$). 6 groups split into two halves of 3 groups, so every number in the row splits into two equal halves, and a number that splits into two equal halves is even.

What counts as right: Counts as right if it makes these points: (1) each number in the row is 6 equal groups, or groups of 6; (2) 6 is even, so the groups split into two equal halves, whatever the size of each group; (3) so every number in the row is even. Checking more numbers in the row, or “it worked for the first few”, does not count: that shows it is true for those, not why it must be.