

Reasoning and Problem Solving

Step 2: Factors

National Curriculum Objectives:

Mathematics Year 5: (5C5a) [Identify multiples and factors, including finding all factor pairs of a number, and common factors of to numbers](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Find missing factors within a multiplication square where the end number for each column and row are the product (using factors 2, 3, 5 and 10).

Expected Find missing factors within a multiplication square where the end number for each column and row are the product (using factors up to and including 10).

Greater Depth Find missing factors within a multiplication square where the end number for each column and row are the product (using factors up to 12 and beyond).

Questions 2, 5 and 8 (Problem Solving)

Developing Find missing factors from 3 pairs of factors with the resulting products given as a clue (using factors 2, 3, 5 and 10).

Expected Find missing factors from 3 pairs of factors with the resulting products given as a clue (using factors up to and including 10).

Greater Depth Find missing factors from 3 pairs of factors with the resulting products given as a clue (using factors up to 12 and beyond).

Questions 3, 6 and 9 (Reasoning)

Developing Identify if a statement regarding factors is true or false and give reasoning for the answer (using factors 2, 3, 5 and 10).

Expected Identify if a statement regarding factors is true or false and give reasoning for the answer (using factors up to and including 10).

Greater Depth Identify if a statement regarding factors is true or false and give reasoning for the answer (using factors up to 12 and beyond).

[More resources](#) which follow the same small steps as White Rose.

Did you like this resource? Don't forget to [review](#) it on our website.

Factors

1a. Find the missing factors and complete the square.

		24
	2	10
15	16	



PS

Factors

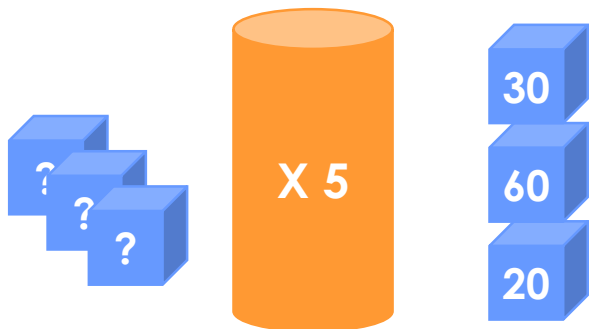
1b. Find the missing factors and complete the square.

10		70
		12
40	21	



PS

2a. Three factors are put into the machine to make the numbers below.

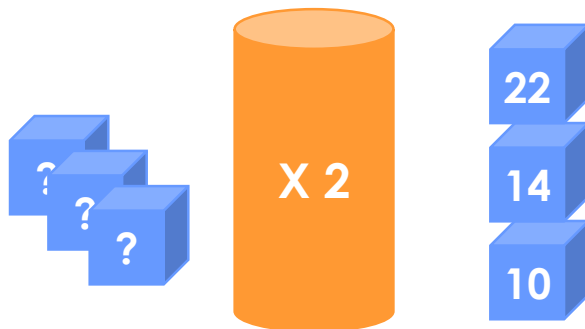


Find the missing factors.



PS

2b. Three factors are put into the machine to make the numbers below.



Find the missing factors.



PS

3a. True or false?

The number 12 has a factor of 5.

Prove it.



R

3b. True or false?

The number 15 has a factor of 5 and 3.

Prove it.



R

Factors

4a. Find the missing factors and complete the square.

7		35
		12
21	20	



PS

Factors

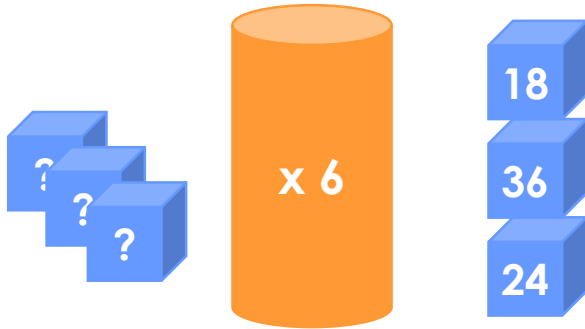
4b. Find the missing factors and complete the square.

		42
4		24
28	36	



PS

5a. Three factors are put into the machine to make the numbers below.

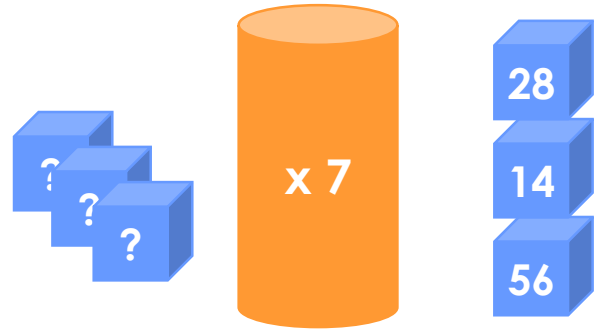


Find the missing factors.



PS

5b. Three factors are put into the machine to make the numbers below.



Find the missing factors.



PS

6a. True or false?

The number 36 has three different factors.

Prove it.



R

6b. True or false?

The number 24 has eight different factors.

Prove it.



R

Factors

7a. Find the missing factors and complete the square.

4		60
		36
48	45	



PS

Factors

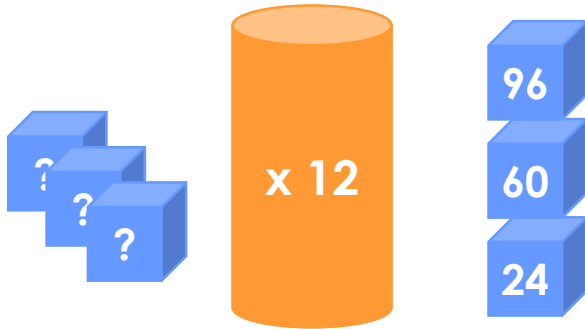
7b. Find the missing factors and complete the square.

		180
	11	44
36	220	



PS

8a. Three factors are put into the machine to make the numbers below.

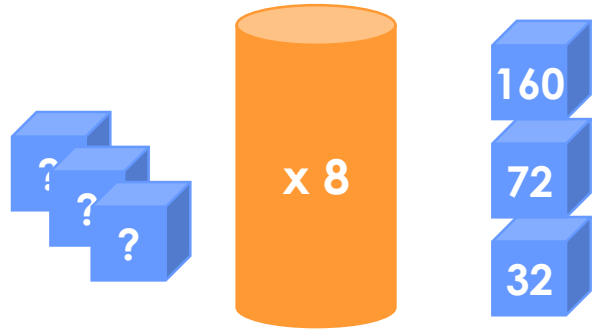


Find the missing factors



PS

8b. Three factors are put into the machine to make the numbers below.



Find the missing factors.



PS

9a. True or false?

The number 81 has three different factors.

Prove it.



R

9b. True or false?

The number 56 has eight different factors.

Prove it.



R

Reasoning and Problem Solving Factors

Developing

1a.

3	8	24
5	2	10
15	16	

2a. 6, 12, 4

3a. False. Factors of 12 are: 1, 2, 3, 4, 6, 12.

Expected

4a.

7	5	35
3	4	12
21	20	

5a. 3, 6, 4

6a. False. It has 9 different factors: 1, 2, 3, 4, 6, 9, 12, 18, 36

Greater Depth

7a.

4	15	60
12	3	36
48	45	

8a. 8, 5, 2

9a. False. 81 has 5 different factors: 1, 3, 9, 27, 81

Reasoning and Problem Solving Factors

Developing

1b.

10	7	70
4	3	12
40	21	

2b. 11, 7, 5

3b. True. Factors of 15 are: 1, 3, 5, 15.

Expected

4b.

7	6	42
4	6	24
28	36	

5b. 4, 2, 8

6b. True. Factors of 24 are: 1, 2, 3, 4, 6, 8, 12, 24

Greater Depth

7b.

9	20	180
4	11	44
36	220	

8b. 20, 9, 4

9b. True. Factors of 56 are: 1, 2, 4, 7, 8, 14, 28, 56