

Reasoning and Problem Solving

Step 13: Order of Operations

National Curriculum Objectives:

Mathematics Year 6: (6C9) [Use their knowledge of the order of operations to carry out calculations involving the four operations](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use the number cards to create calculations for a given answer. Using calculations with two operations. Using all four operations and tables knowledge up to 12×12 .

Expected Use the number cards to create calculations for a given answer. Using calculations with up to three operations. Using brackets and tables knowledge up to 12×12 .

Greater Depth Use the number cards to create calculations for a given answer. Using calculations with up to three operations. Using brackets, indices, fractions, decimal numbers and tables knowledge up to 12×12 .

Questions 2, 5 and 8 (Reasoning)

Developing Decide whether a calculation is correct and explain why. Using calculations with two operations. Using all four operations and tables knowledge up to 12×12 .

Expected Decide whether a calculation is correct and explain why. Using calculations with up to three operations. Using brackets and tables knowledge up to 12×12 .

Greater Depth Decide whether a calculation is correct and explain why. Using calculations that include up to three operations. Using brackets, indices, fractions, decimal numbers and tables knowledge up to 12×12 .

Questions 3, 6 and 9 (Problem Solving)

Developing Match the calculation to the correct answer using knowledge of the order of operations. Calculations with two operations. Using all four operations and tables knowledge up to 12×12 .

Expected Match the calculation to the correct answer using knowledge of the order of operations. Calculations with up to three operations. Using brackets and tables knowledge up to 12×12 .

Greater Depth Match the calculation to the correct answer using knowledge of the order of operations. Calculations with up to three operations. Using brackets, indices, fractions, decimal numbers and tables knowledge up to 12×12 .

More [Year 6 Four Operations](#) resources.

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

Order of Operations

1a. Use the following numbers to create a calculation with the answers below.



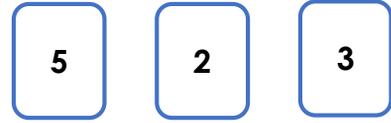
Answer	Calculations
40	
22	



PS

Order of Operations

1b. Use the following numbers to create a calculation with the answers below.



Answer	Calculations
30	
13	



PS

2a. Chuan is completing this calculation:

$$2 + 6 \div 2$$

The answer is 4.
I did $2 + 6 = 8$,
then $8 \div 2 = 4$.



Chuan

Is he correct? Explain how you know.



R

2b. Alice is completing this calculation:

$$8 - 2 \div 2$$

The answer is 3.
I did $8 - 2 = 6$,
then $6 \div 2 = 3$.



Alice

Is she correct? Explain how you know.



R

3a. Work out which child has completed the calculation correctly from their answers.

$$3 + 2 \times 7 =$$

My answer is 17.



Kelly

My answer is 35.



Hannah



PS

3b. Work out which child has completed the calculation correctly from their answers.

$$2 \times 5 - 3 =$$

My answer is 7.



Hafsa

My answer is 4.



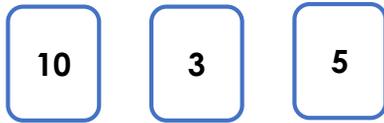
Cian



PS

Order of Operations

4a. Use the following numbers to create a calculation with the answers below.



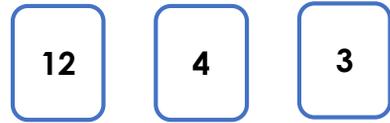
Answer	Calculations
150	
45	



PS

Order of Operations

4b. Use the following numbers to create a calculation with the answers below.



Answer	Calculations
84	
144	



PS

5a. Cian is completing this calculation:

$$12 \times 3 + 27 \div 9$$

The answer is 7.
I did $12 \times 3 = 36$,
 $36 + 27 = 63$,
then $63 \div 9 = 7$.



Is he correct? Explain how you know.



R

5b. Lucy is completing this calculation:

$$8 \times 5 + 20 \div 10$$

The answer is 42.
I did $20 \div 10 = 2$,
then $8 \times 5 = 40$,
then $40 + 2 = 42$.



Is she correct? Explain how you know.



R

6a. Work out which child has which calculation from their given answers.

$$A. 6 \times 6 \div 3 \times 2$$

$$B. 6 \times 6 \div (3 \times 2)$$

My answer is 24.



My answer is 6.



PS

6b. Work out which child has which calculation from their given answers.

$$A. 4 + 8 \times (3 + 7)$$

$$B. 4 + 8 \times 3 + 3$$

My answer is 31.



My answer is 84.



PS

Order of Operations

7a. Use the following numbers to create a calculation with the answers below.

3	10	2	12
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Answer	Calculations
125	
63	



PS

Order of Operations

7b. Use the following numbers to create a calculation with the answers below.

6	10	8	4
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Answer	Calculations
92	
108	



PS

8a. Josh is completing this calculation:

$$3^2 + 12 \times 10$$

The answer is 210.
I did $3^2 = 9$,
then $9 + 12 = 21$,
then $21 \times 10 = 210$.



Josh

Is he correct? Explain how you know.



R

8b. Ben is completing this calculation:

$$4^2 \div 8 + 9 \times 10$$

The answer is 92.
I did $4^2 = 16$,
then $16 \div 8 = 2$,
then $9 \times 10 = 90$,
then $2 + 90 = 92$.



Ben

Is he correct? Explain how you know.



R

9a. Work out which child has which calculation from their given answers.

A. $(4^2 \times \frac{1}{2}) \times (8 + 4)$

B. $(4^2 \times \frac{1}{2}) \times 8 + 4$

My answer is 68.



Hafsa

My answer is 96.



Sinead



PS

9b. Work out which child has which calculation from their given answers.

A. $(11^2 - 7^2) \div 9 - 1$

B. $(11^2 - 7^2) \div (9 - 1)$

My answer is 7.



Johnny

My answer is 9.



Gabriel



PS

Reasoning and Problem Solving Order of Operations

Developing

- 1a. $2 \times 4 \times 5 = 40$; $4 \times 5 + 2 = 22$.
2a. Chuan is incorrect, the answer is 5. He should have completed the division first. $6 \div 2 = 3$, then $2 + 3 = 5$.
3a. Kelly is correct. The multiplication should be completed before the addition.

Expected

- 4a. $10 \times 5 \times 3 = 150$; $(10 + 5) \times 3 = 45$.
5a. Cian is incorrect, the answer is 39. He should have completed the division first. $27 \div 9 = 3$, then $12 \times 3 = 36$ and then $3 + 36 = 39$.
6a. A – Steph, B – Chuan

Greater Depth

- 7a. $12 \times 10 + 3 + 2 = 125$; $12 \times 10 \div 2 + 3 = 63$.
8a. Josh is incorrect, the answer is 129. He should have completed $3^2 = 9$ first, then $12 \times 10 = 120$ and then added the answers together.
9a. A – Sinead, B – Hafsa

Reasoning and Problem Solving Order of Operations

Developing

- 1b. $3 \times 5 \times 2 = 30$; $5 \times 2 + 3 = 13$.
2b. Alice is incorrect, the answer is 7. She should have completed the division first. $2 \div 2 = 1$, then $8 - 1 = 7$.
3b. Hafsa is correct. The multiplication should be completed before the subtraction.

Expected

- 4b. $12 \times (4 + 3) = 84$; $12 \times 4 \times 3 = 144$.
5b. Lucy is correct. She completed the division first, then the multiplication, then added the answers together.
6b. A – Isabel, B – Alice

Greater Depth

- 7b. $(6 \times 10) + (8 \times 4) = 92$ or $(6 + 4) \times 10 - 8 = 92$; $(6 + 4) \times 10 + 8$
8b. Ben is correct. He completed the indices first, then the division and multiplication, then the addition.
9b. A – Johnny, B – Gabriel