MATHEMATICS · GRADES 4-6

Order of operations introduction

Difficulty level: Intermediate

Mathematics: Grades 4-6

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Overview of the concept

This is how everyone agrees on the answer to a calculation with more than one step, like working out a bill with a discount and tax, so two people never get different totals. A shop applies the discount before the tax, and a calculator follows the same agreed order, so the total is the same no matter who works it out. Without one shared order, the same bill could come to two different amounts depending on who did the maths. It is a convention, but it is the convention that keeps money and measurements honest.



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Rule

Order of operations: you follow BEDMAS.

BEDMAS stands for Brackets, Exponents, Division and Multiplication, Addition and Subtraction. Work through a calculation in that order. Do the brackets first, then the exponents, then division and multiplication from left to right, then addition and subtraction from left to right.

Worked examples

EXAMPLE 1

Q $6 + 3 \times 4 = ?$

SOLUTION

6 + 3 × 4

6 + 12

18

Do multiplication before addition: 3 × 4 = 12

Now only addition is left: 6 + 12.

Total: 18 (Adding first would wrongly give 36.)

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EXAMPLE 2

Q $(8 - 3) \times 2 + 5 = ?$

SOLUTION

(8 - 3) × 2 + 5

5 × 2 + 5

10 + 5

15

Do the brackets first: 8 - 3 = 5

Then multiply: 5 × 2 = 10

Then add: 10 + 5 = 15

Practice questions

1 A shop sells 5 pens + 2 packs of 3 pens. How many pens is that in all?

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2 A class has 5 boys and 2 girls in each of 3 groups. How many students is that in all?

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3 Maya has 8 stickers and gives away 3 packs of 2 stickers. How many stickers does she have left?

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4 A farmer has 4 hens. He also has 6 chicks, shared equally between 2 pens. How many birds does he have in all?

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5 Sara has 9 boxes, gives away 4, and puts 2 pens in each box she has left. How many pens is that?

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6 A teacher has 18 pencils and shares them equally among 3 groups, then finds 4 more pencils. How many pencils does she have in all?

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7 A farmer collects 12 eggs in the morning and 6 in the evening, then packs them into boxes of 3. How many boxes?

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8 A gardener plants 2 rows. Each row has 6 plants, but 1 plant in each row does not grow. How many plants grow?

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9 A square patio has sides 3 metres long. A rectangular garden has area 6 square metres. What is the total area of the patio and the garden?

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10 A shop has 10 shelves, closes 6 of them, puts 3 books on each open shelf, and 1 book on the counter. How many books is that?

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ANSWER KEY

1. 11

2. 21

3. 2

4. 10

5. 10

6. 10

7. 6

8. 10

9. 15

10. 13

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