G.C.E. O/L Grade 10 ICT · Lesson 7

7.3 Spreadsheet Formulas: Operators and Simple Calculations

A **formula** tells the spreadsheet to calculate. Every formula starts with **=**. It can use **values** (=5+3) or, better, **cell addresses** (=B2*C2) so that the answer updates when the data changes. In this note you will use the five arithmetic **operators + − * / ^** and learn the **order of operations (precedence)**: brackets first, then powers, then multiply and divide, then add and subtract.

1. The arithmetic operators

Operator	Meaning	Formula	Result
+	Add	=15+7	22
− (minus key -)	Subtract	=15-7	8
*	Multiply	=15*7	105
/	Divide	=15/6	2.5
^	Power (exponent)	=2^5	32

💡 Use the asterisk * (not ×) and the slash / (not ÷). Typing 15×7 or 15x7 gives an error or text.

2. Calculations using cell addresses

Let **A1 = 20, B1 = 4, C1 = 3**. Then =A1+B1 → **24**, =A1-B1 → **16**, =A1*B1 → **80**, =A1/B1 → **5**, =B1^C1 → **64**. If B1 changes to 5, =A1*B1 becomes **100** automatically.

Item (A)	Qty (B)	Price Rs. (C)	D: =B*C
Exercise book	5	120	=B2*C2 → 600
Pen	4	45	=B3*C3 → 180
Ruler	2	80	=B4*C4 → 160
Glue	1	150	=B5*C5 → 150

Bill total: **=D2+D3+D4+D5** = Rs. **1090**. Area of a square of side 12 m: **=12^2** = **144** m^2.

3. Order of operations (precedence)

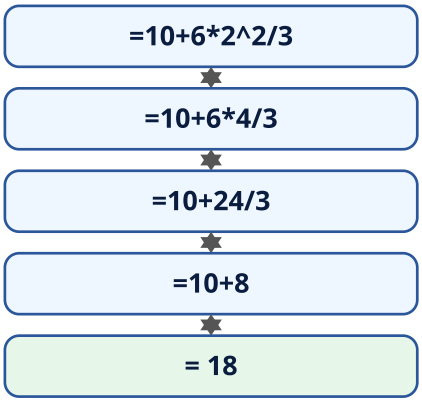
1. Brackets ( )
Worked out first.

2. Power ^
Next.

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3. * and /
Left to right.

4. + and −
Left to right, last.



Order (BODMAS)
1. ( ) Brackets
2. ^ Power
3. * / left→right
4. + − left→right

Worked example: =10+6*2^2/3 = 18.

Formula	Working	Result
=2+3*4	3*4 = 12 first, then 2+12	14
=(2+3)*4	Brackets: 5, then 5*4	20
=20-8/4	8/4 = 2, then 20-2	18
=(20-8)/4	12/4	3
=3*2^3	2^3 = 8 first, then 3*8	24
=(3*2)^2	6^2	36
=12/4*3	Left to right: 3*3	9
=(72+65+58)/3	Average of three marks	65

💡 Common mistake: **=B2+C2+D2/3** divides only D2 by 3. For an average write **=(B2+C2+D2)/3**. With Nimal's marks: wrong = 156.33, right = 65.

4. Error values (2026 focus)

Error	Cause	Fix
#DIV/0!	Dividing by zero or an empty cell, e.g. =A1/0	Check the divisor
#VALUE!	Text used in maths, e.g. =A1+D1 where D1 = 'ten'	Type a number
#NAME?	Misspelt function name, e.g. =SUMM(A1:B1)	Correct the spelling
####	Column too narrow for the number or date	Widen the column (double-click its border)

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Key Words

Formula – A calculation starting with =.

Operator – Symbol for a calculation: + − * / ^.

Addition (+) – Adds values: =4+5.

Subtraction (−) – Subtracts: =9-4.

Multiplication (*) – Multiplies with the asterisk: =6*7.

Division (/) – Divides with a slash: =20/4.

Exponent (^) – Raises to a power: =2^3 = 8.

Precedence – Order in which operators are worked out.

BODMAS – Brackets, Orders (powers), Division/Multiplication, Addition/Subtraction.

Cell reference – Using a cell address in a formula, e.g. =B2*C2.

#DIV/0! – Error when dividing by zero or an empty cell.

#VALUE! – Error when text is used in a calculation.

Sample Q&A

1. Why should formulas use cell addresses instead of values?

> **Answer:** The result updates automatically when the data in the cells changes.

2. What is the result of =2+3*4?

> **Answer:** 14 (multiply first).

3. What is the result of =(2+3)*4?

> **Answer:** 20 (brackets first).

4. Write a formula to find the average of B2, C2 and D2.

> **Answer:** =(B2+C2+D2)/3

5. What does #DIV/0! mean?

> **Answer:** The formula divides by zero or by an empty cell.

6. Which operator means power?

> **Answer:** ^ (caret), e.g. =3^2 = 9.

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MCQ

1. Every formula must begin with...

A. =
B. $
C. #
D. +

2. The multiplication operator is...

A. x
B. ^
C. *
D. ×

3. The result of =2+3*4 is...

A. 14
B. 24
C. 20
D. 9

4. The result of =(2+3)*4 is...

A. 24
B. 20
C. 9
D. 14

5. The result of =2^4 is...

A. 8
B. 6
C. 16
D. 24

6. The result of =20-8/4 is...

A. 3
B. 12
C. 16
D. 18

7. The result of =3*2^3 is...

A. 216
B. 12
C. 24
D. 18

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8. The result of =12/4*3 is...

A. 36
B. 4
C. 1
D. 9

9. A1 = 20 and B1 = 4. =A1/B1 gives...

A. 24
B. 5
C. 16
D. 80

10. B1 = 4 and C1 = 3. =B1^C1 gives...

A. 64
B. 12
C. 81
D. 7

11. Which formula correctly averages B2, C2 and D2?

A. =B2+C2+(D2/3)
B. =(B2+C2+D2)/3
C. =(B2+C2)+D2/3
D. =B2+C2+D2/3

12. Qty 5 in B2 and price Rs. 120 in C2. =B2*C2 shows...

A. 5120
B. 125
C. 600
D. 24

13. Which operator is worked out first?

A. ^
B. −
C. +
D. *

14. =A1/B1 where B1 is empty shows...

A. 20
B. ####
C. #VALUE!
D. #DIV/0!

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15. A column too narrow for a number shows…

A. #DIV/0!
B. ####
C. #NAME?
D. #VALUE!

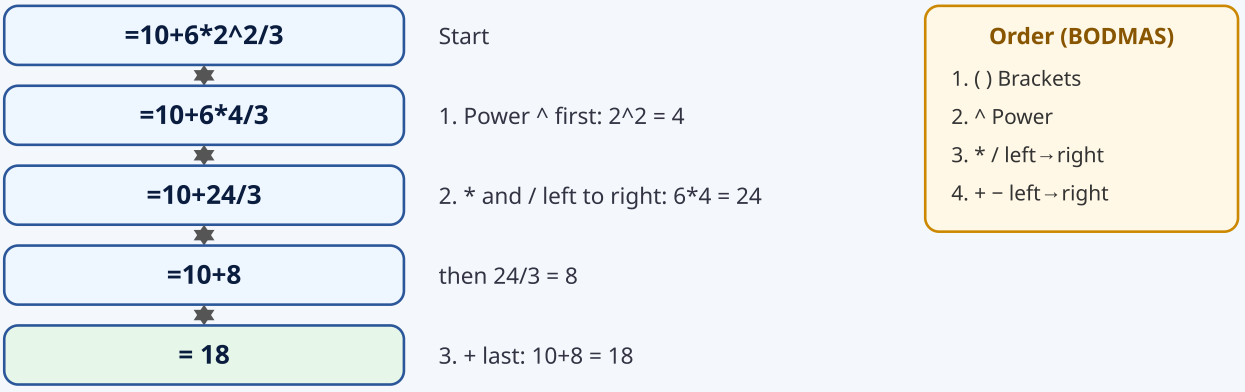
Structured Questions

1. Write the results: (a) =15+7 (b) =15-7 (c) =15*7 (d) =15/6 (e) =2^5 *(5 marks)*

> (a) 22 (b) 8 (c) 105 (d) 2.5 (e) 32

2. Work out =10+6*2^2/3 step by step. *(4 marks)*

> 2^2 = 4; 6*4 = 24; 24/3 = 8; 10+8 = 18.



Model working.

3. A shop bill has Qty in B2:B5 and Price in C2:C5. (i) Write the formula for D2. (ii) Write a formula for the total in D6 using +. (iii) Give the total for the data 5×120, 4×45, 2×80, 1×150. *(4 marks)*

> (i) =B2*C2 (ii) =D2+D3+D4+D5 (iii) 600 + 180 + 160 + 150 = Rs. 1090.

4. Nimal's marks are 72, 65 and 58 in B2, C2, D2. A student typed =B2+C2+D2/3. (i) What result is shown? (ii) Correct the formula and give the right answer. *(4 marks)*

> (i) 156.33 (only D2 divided). (ii) =(B2+C2+D2)/3 = 65.

5. State the cause of each error: #DIV/0!, #VALUE!, #NAME?, ####. *(4 marks)*

> #DIV/0! divide by zero/empty; #VALUE! text in a calculation; #NAME? wrong function name; #### column too narrow.

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Summary

- Formulas start with =.
- Operators: + add, − subtract, * multiply, / divide, ^ power.
- Use cell addresses so results update automatically.
- Order: brackets, ^, * and /, + and − (left to right).
- =2+3*4 = 14 but =(2+3)*4 = 20.
- Average of three: =(B2+C2+D2)/3.
- #DIV/0! divide by zero; #VALUE! text in maths.
- #NAME? wrong name; #### column too narrow.

MCQ answer key – 7.3

1. **A** – Equals sign.
2. **C** – Asterisk.
3. **A** – 3*4 first.
4. **B** – Brackets first.
5. **C** – 2×2×2×2.
6. **D** – 8/4 first.
7. **C** – Power before multiply.
8. **D** – Left to right.
9. **B** – 20/4.
10. **A** – 4×4×4.
11. **B** – Brackets around the sum.
12. **C** – 5 × 120.
13. **A** – Power is highest (after brackets).
14. **D** – Empty = 0.
15. **B** – Widen the column.

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