



Order of operations

- Working out calculations involving more than one operation
- Working out calculations involving brackets
- Identifying when to use brackets in calculations

Keywords

explanation 1a

explanation 1b

1 Work out the value of each expression.

a $3 + 7 + 8$

b $15 - 5 - 3$

c $2 \times 3 \times 4$

d $40 \div 2 \div 2$

e $100 \div 2 \div 10$

f $2 \times 5 \times 10$

2 Work out these calculations.

a $6 \times 2 \div 4$

b $20 \div 2 \times 7$

c $25 - 10 + 4$

d $14 + 6 - 12$

e $2 \times 2 \times 2 \times 2$

f $90 \div 3 \div 3$

3 Copy and complete these calculations. Each \square stands for a number.

a $\square \times 3 \times 2 = 24$

b $\square \div 2 \div 3 = 5$

c $\square \times 10 \div 2 = 40$

d $40 \div \square \times 3 = 15$

e $32 - \square + 3 = 20$

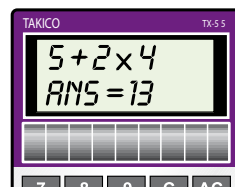
f $100 \div \square \times 2 = 50$

explanation 2a

explanation 2b

4 Gemma typed $5 + 2 \times 4$ into her calculator. It gave her the answer 13.

How has the calculator worked out the answer?



5 Work out these calculations. Follow the rules for the order of operations.

a $4 + 6 \times 3$

b $24 - 3 \times 5$

c $2 \times 5 + 3$

d $11 - 21 \div 3$

e $5 \times 12 \div 6$

f $16 - 2 \times 5$

g $3 + 10 - 2$

h $12 \div 4 + 6$

i $4 + 40 \div 5$

- 6 a** Explain why this is true.

$$5 \times 4 - 6 \times 3 = 2$$

- b** Explain why this is true.

$$5 + 4 \times 6 - 3 = 26$$

- 7** Work out these calculations.

a $4 + 6 \times 3 + 2$

b $24 \div 2 - 2 \times 4$

c $2 \times 5 + 3 \times 4$

d $11 - 21 \div 3 + 1$

e $12 \div 4 + 36 \div 4$

f $6 \times 4 - 2 \times 8$

- 8** Jack wrote this answer in his exercise book.

He got the correct answer but his teacher has circled his working.

What is Jack's mistake?

$10 - 3 \times 2$
$= 6 - 10$
$= 4$

explanation 3

- 9** Work out these calculations.

a $(2 + 8) \times 3$

b $2 + 8 \times 3$

c $4 \times (5 + 3)$

d $4 \times 5 + 3$

e $14 - 6 \div 2$

f $(14 - 6) \div 2$

g $20 - 6 \times 2$

h $(20 - 6) \times 2$

i $18 - 4 \times 3$

- 10** Which of these calculations are not correct?

Copy these calculations and write in brackets to make them correct.

a $3 + 2 \times 5 = 25$

b $2 + 3 \times 6 = 20$

c $4 \times 2 + 3 = 20$

d $5 \times 2 + 3 = 13$

e $18 - 6 \div 2 = 6$

f $16 - 10 \div 2 = 11$

explanation 4

- 11** Match each question to its answer.

$$\frac{9 + 6}{3}$$

$$\frac{12 - 5}{7}$$

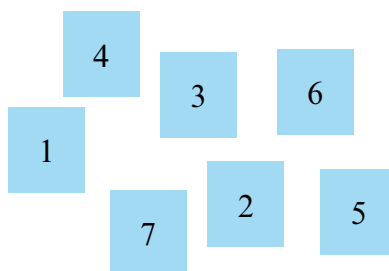
$$\frac{7 + 8}{3 + 2}$$

$$\frac{2 \times 8}{4}$$

$$\frac{13 + 22}{5}$$

$$\frac{36}{2 + 4}$$

$$\frac{32 - 8}{4 \times 3}$$



explanation 5

12 Decide whether each of these statements is true or false.

Explain each answer.

a $30 - 5 \times 4 = 100$

b $10 + 3 \times 5 - 2 = 23$

c $15 \times 2 + 20 \div 4 = 35$

d $\frac{10 - 4}{5 + 1} = 0$

e In the equation $5 \square 2 \times 5 = 15$, the \square stands for the operation $-$ (subtract).

13 Work out each calculation.

a $(5 + 3) \times 2$

b $24 - 7 \times 3$

c $8 \times 5 \div 2$

d $8 \times (5 - 2)$

e $18 - 10 \div 2$

f $(7 + 9) \div 2$

g $20 - 6 + 2$

h $(11 - 6) \times 2$

i $27 \div (5 + 4) \times 2$

j $5 + 3 \times 4 - 2$

k $5 \times 3 + 4 \times 2$

l $21 \div 3 + 5 \times 2$

m $\frac{12 + 8}{4}$

n $\frac{24}{2 \times 4}$

o $\frac{20 - 4}{5 - 3}$

14 Copy and complete these calculations.

Each \square stands for an operation $(+, -, \times, \text{ or } \div)$.

a $5 \square 7 \times 2 = 19$

b $21 \square 3 + 11 = 18$

c $18 + 6 \square 2 = 21$

d $12 \square 2 \times 5 = 22$

e $15 \square 2 - 11 = 19$

f $24 \square 8 \square 5 = 64$

15 Copy these statements and write in brackets to make them true.

a $5 \times 4 + 3 = 35$

b $20 - 3 + 8 = 9$

c $8 + 10 \div 2 = 9$

d $24 \div 6 - 4 = 12$

e $5 + 15 \div 3 - 1 = 10$

f $10 + 30 \div 6 + 2 = 5$

Use *two* pairs of brackets in questions **e** and **f**.