ORDER OF OPERATIONS

BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

KEY IDEA

Do the calculation in this order:

1st brackets
2nd × and ÷
3rd + and –

$2 + 3 \times 4 = 2 + 12 = 14$



1 Underline the brackets. Work them out first.

a) $(3 + 4) \times 2$ = ☐ × 2 = ☐

b) $20 - (5 + 3)$ = 20 – ☐ = ☐

c) $(9 - 4) \times 3$ = ☐ × 3 = ☐

2 There are no brackets, so do the × first.

a) $2 + 3 \times 4$

Step 1: $3 \times 4 =$ ☐

Step 2: $2 +$ ☐ = ☐

b) $10 - 2 \times 3$

Step 1: $2 \times 3 =$ ☐

Step 2: $10 -$ ☐ = ☐

3 Look at the dots.



Circle the calculation that matches:

$2 \times 4 + 3$ $2 \times (4 + 3)$

How many dots are there altogether? ☐

4 Is each calculation true or false? Circle your answer.

a) $5 + 2 \times 3 = 21$ TRUE FALSE

b) $(5 + 2) \times 3 = 21$ TRUE FALSE

c) $12 \div 4 + 2 = 2$ TRUE FALSE

ORDER OF OPERATIONS

SUPPORT

NAME _____ CLASS _____ DATE _____

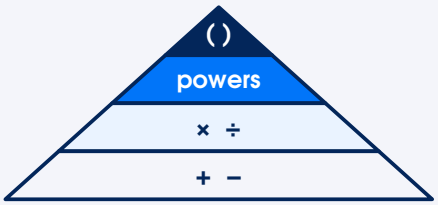
KEY IDEA

Work from the top of the pyramid down.

× and ÷ have equal priority: work left to right.

+ and – have equal priority: work left to right.

18 – 6 + 4 = 12 + 4 = 16 (not 18 – 10)



1 Work out each calculation.

Underline the part you work out first.

a) **6 + 4 × 5** ☐

b) **30 – 12 ÷ 3** ☐

c) **8 × 3 – 2 × 5** ☐

d) **16 – 7 + 3** ☐

2 Work out each calculation. Powers come before × and +.

a) **$(6 + 2)^2$** ☐

b) **$3^2 + 4$** ☐

c) **5 × (12 – 9)** ☐

d) **2×3^2** ☐

3 Ella says, "4 + 6 × 2 = 20"

a) Explain Ella's mistake.

.....

b) What is 4 + 6 × 2? ☐

4 Add one pair of brackets to make each calculation correct.

a) **7 + 3 × 4 = 40**

b) **24 ÷ 6 – 2 = 6**

ORDER OF OPERATIONS

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

Brackets first, then powers and roots, then × and ÷, then + and −. Operations with equal priority are worked from left to right, so $48 \div 6 \times 2 = 8 \times 2 = 16$. Brackets can change the answer: $(2 + 3)^2 = 25$ but $2 + 3^2 = 11$.

FLUENCY

1 Work out each calculation.

a) $48 \div 6 \times 2$ ☐

b) $5 + 3 \times 2^2$ ☐

c) $(14 - 2 \times 4)^2$ ☐

d) $\sqrt{36} + 4 \times 3$ ☐

e) $100 - (6 + 4)^2 \div 5$ ☐

f) $(7 + 8) \div 3 - 1$ ☐

2 A taxi charges £3 plus £2 for every mile.

a) Write one calculation for the cost of a 7-mile journey.

.....

b) Cost: ☐

REASONING

3 Add brackets, if they are needed, to make each statement correct.

a) $2 + 3 \times 4 + 1 = 25$

b) $2 + 3 \times 4 + 1 = 21$

c) $2 + 3 \times 4 + 1 = 15$

4 Explain why $20 - 6 + 4$ and $20 - (6 + 4)$ give different answers.

.....

.....

ORDER OF OPERATIONS

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

1 Is each statement always, sometimes or never true? Circle your answer.

a, b and c are positive numbers. Give an example to support each answer.

a) Adding brackets changes the answer. ALWAYS SOMETIMES NEVER

b) $a \times b \div c = a \div c \times b$ ALWAYS SOMETIMES NEVER

c) $(a + b)^2 = a^2 + b^2$ ALWAYS SOMETIMES NEVER

.....

PROBLEM SOLVING

2 Use each digit card once, with any operations and brackets, to make each target.

2	3	4	6

a) ..... = 30

b) ..... = 1

c) ..... = 50

3 Cinema tickets cost £9 for an adult and £6 for a child. Two adults and three children go, and they use a £5 voucher.

a) Write one calculation for the total cost.

.....

b) Cost: ☐

★ CHALLENGE FOR ALL

4 Use 1, 2, 3 and 4 once each, with only + and × and any brackets.

a) What is the greatest number you can make? ☐

b) Make 25. .....

c) Make 11. .....

ORDER OF OPERATIONS

ANSWERS

BUILDING BLOCKS

1 a) 7 × 2 = 14 · b) 20 – 8 = 12 · c) 5 × 3 = 15
2 a) 12, then 2 + 12 = 14 · b) 6, then 10 – 6 = 4
3 2 × 4 + 3; 11 dots
4 a) False (11) · b) True · c) False (5)

SUPPORT

1 a) 26 · b) 26 · c) 14 · d) 12
2 a) 64 · b) 13 · c) 15 · d) 18
3 a) She added first. Multiplication comes before addition: 6 × 2 = 12. b) 16
4 a) (7 + 3) × 4 = 40 · b) 24 ÷ (6 – 2) = 6

CORE

1 a) 16 · b) 17 · c) 36 · d) 18 · e) 80 · f) 4
2 a) 3 + 2 × 7 · b) £17
3 a) (2 + 3) × (4 + 1) = 25 · b) (2 + 3) × 4 + 1 = 21 · c) no brackets needed: 2 + 3 × 4 + 1 = 15
4 20 – 6 + 4 works left to right: 14 + 4 = 18. With brackets, 6 + 4 = 10 is subtracted: 10.

GREATER DEPTH

1 a) Sometimes (2 + (3 × 4) is unchanged, but (2 + 3) × 4 changes) · b) Always · c) Never for positive numbers ($(a + b)^2 = a^2 + 2ab + b^2$)
2 e.g. a) 6 × (4 + 3 – 2) = 30 · b) 6 – 4 – 3 + 2 = 1 · c) (3 + 2) × (6 + 4) = 50
3 a) 2 × 9 + 3 × 6 – 5 · b) £31
4 a) 36, e.g. (1 + 2) × 3 × 4 · b) e.g. (4 + 1) × (3 + 2) · c) e.g. 4 × 2 + 3 × 1