

TARGET To use knowledge of the order of operations.

Combining mathematical operations could lead to confusion unless there are clear rules about the order in which they are done.

Example $5 + 3 \times 2$

$$\begin{array}{lcl} \text{This could be } 5 + 3 \times 2 = 8 \times 2 & \text{or} & 5 + 3 \times 2 = 5 + 6 \\ & & = 16 \qquad \qquad \qquad = 11 \end{array}$$

For this reason mathematical operations must be done in this order.

1. Deal with brackets
2. Divide and multiply
3. Add and subtract

Examples

$18 + 4 \times (7 + 5)$	$(10 + 6) \div 2 + 3$
$18 + 4 \times 12$	$16 \div 2 + 3$
$18 + 48$	$8 + 3$
66	11

A

Work out. Show your working.

Remember: $\div/\times$ before $+/-$

- 1 $3 + 2 \times 4$
- 2 $9 - 6 \div 3$
- 3 $4 \times 8 - 6$
- 4 $20 + 12 \div 4$
- 5 $15 - 3 \times 2$
- 6 $24 \div 4 + 2$
- 7 $60 - 20 \div 5$
- 8 $12 \times 3 + 7$
- 9 $97 - 8 \times 9 + 11$
- 10 $30 \div 6 + 4 \times 5$
- 11 $4 + 16 \div 2 + 15$
- 12 $10 \times 2 + 4 \times 3$
- 13 $120 - 40 \div 8 - 50$
- 14 $8 + 2 \times 6 - 13$
- 15 $100 \div 10 - 5 \div 3$
- 16 $15 - 3 \times 4 - 3$

B

Work out. Show your working.

Remember: Brackets first.

- 1 $(55 - 4) \times (5 + 5)$
- 2 $55 - 4 \times 5 + 5$
- 3 $(20 + 12) \div 4 - 1$
- 4 $20 + 12 \div 4 - 1$
- 5 $6 \times (6 - 2) + 9$
- 6 $6 \times 6 - (2 + 9)$
- 7 $(24 + 48) \div 8 + 4$
- 8 $24 + 48 \div (8 + 4)$
- 9 $42 - (6 + 9) \div 3$
- 10 $(16 - 8) \times (10 - 6)$
- 11 $10 + 20 + 30 \times 40$
- 12 $45 \div (9 - 6) - 6$
- 13 $(54 - 18) \div (4 + 5)$
- 14 $16 + 4 \times (3 + 8)$
- 15 $200 - (5 + 7) \times 7$
- 16 $(100 - 28) \div (18 - 2)$

C

Work out. Show your working.

- 1 $(2 + 7) \times 4 - 10 \div 2$
- 2 $12 \div 2 + (4 - 2) \times 6$
- 3 $(40 - 10) \div 5 + 1 \times 12$
- 4 $16 \times 2 - (8 \times 8) \div 4$
- 5 $6 \times (3 + 5) - 18 \div 3$
- 6 $(25 + 75) \div 5 - 4 \times 5$
- 7 $72 \div (12 - 3) + 6 \times 7$
- 8 $(10 - 7) \times 9 + 12 \div 2$

Copy and complete by putting in any missing brackets.

- 9 $10 \times 2 + 6 = 80$
- 10 $16 - 10 \div 2 = 3$
- 11 $11 - 5 \times 7 + 2 = 54$
- 12 $9 + 6 \div 3 - 1 = 12$
- 13 $20 + 25 - 10 \div 5 = 23$
- 14 $17 - 2 \times 6 + 4 = 150$
- 15 $60 \div 4 + 8 - 3 = 2$
- 16 $9 + 15 - 9 \times 3 = 27$

TARGET To explore the order of operations using brackets.

ORDER OF OPERATIONS

1. Deal with brackets
2. Divide and multiply
3. Add and subtract

Examples

$7 \times 8 - 5 + 3$	$7 \times 8 - (5 + 3)$	$7 \times (8 - 5) + 3$
$56 - 5 + 3$	$7 \times 8 - 8$	$7 \times 3 + 3$
54	$56 - 8$	$21 + 3$
	48	24

A

Work out the brackets first.

- | | | |
|----------------------|---------------------------|------------------------|
| 1 $(6 \times 3) + 2$ | 7 $30 - (5 \times 3)$ | 13 $(7 + 4) \times 9$ |
| 2 $6 \times (3 + 2)$ | 8 $(30 - 5) \times 3$ | 14 $7 + (4 \times 9)$ |
| 3 $(60 \div 10) - 5$ | 9 $24 \div (3 \times 4)$ | 15 $(50 - 20) \div 10$ |
| 4 $60 \div (10 - 5)$ | 10 $(24 \div 3) \times 4$ | 16 $50 - (20 \div 10)$ |
| 5 $(12 + 6) \div 2$ | 11 $5 \times (8 - 2)$ | 17 $(45 \div 5) + 4$ |
| 6 $12 + (6 \div 2)$ | 12 $(5 \times 8) - 2$ | 18 $45 \div (5 + 4)$ |

B

Put the brackets in the right place to make the calculation correct.

- | | | |
|----------------------------|--------------------------------|--------------------------|
| 1 $3 \times 8 - 5 = 9$ | 6 $3 + 4 \times 5 = 35$ | 11 $9 + 6 \div 3 = 11$ |
| 2 $8 + 12 \div 4 = 5$ | 7 $20 \div 4 + 1 = 6$ | 12 $3 \times 7 - 3 = 18$ |
| 3 $60 \div 10 - 4 = 2$ | 8 $48 - 15 \div 3 = 11$ | 13 $8 - 4 \times 2 = 8$ |
| 4 $36 - 9 \times 2 = 18$ | 9 $7 \times 6 + 2 = 56$ | 14 $84 \div 12 - 5 = 12$ |
| 5 $48 \div 4 \times 3 = 4$ | 10 $100 \div 20 \times 2 = 10$ | 15 $6 \times 5 + 2 = 42$ |

C

Place two pairs of brackets to make each calculation correct.

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|--|--|
| 1 $11 - 3 \times 2 = 90 \div 15 + 3$ | 6 $18 + 6 \times 6 = 8 \times 20 - 16$ |
| 2 $28 + 12 \div 4 = 2 \times 9 - 4$ | 7 $14 \times 5 - 3 = 10 + 36 \div 2$ |
| 3 $5 \times 5 + 3 = 1000 \div 20 + 5$ | 8 $75 \div 3 \times 5 = 100 \div 10 - 5$ |
| 4 $64 \div 8 - 4 = 3 \times 5 + 1$ | 9 $23 - 7 \times 2 = 8 \times 6 - 2$ |
| 5 $104 - 56 \div 4 = 42 - 12 \times 3$ | 10 $36 + 36 \div 9 = 24 - 8 \times 2$ |