

UNIT 15

SECTION 5: BRACKETS

DIRECT TEACHING POINTS

- Teach the use of brackets to show the order of operations in calculations.

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

$$(4 \times 2) = 8$$

$$3 + 8 = 11, \text{ so } 3 + (4 \times 2) = 11$$

Always work out the
brackets first,

$(a - 3) \times 2 = 14$. What is a ?

$$7 \times 2 = 14,$$

$$10 - 3 = 7,$$

$$\text{so } a = 10.$$

- Exercise 1 provides essential practice. Exercise 2 and Star Challenge 2 are more difficult.
- In Star Challenge 1, discuss what is an appropriate method of calculation – mental, written or calculator.



bracket order of operations

Brackets

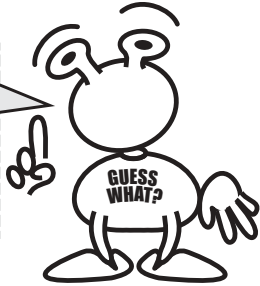
1 Using brackets



Example

Work out $3 + (4 \times 2)$
 $(4 \times 2) = 8$
 $3 + 8 = 11$, so $3 + (4 \times 2) = 11$

Always work out the brackets first.



Work out the value of each expression in your head:

- | | | |
|---|---|--|
| 1 $2 + (3 \times 10) = \dots\dots\dots$ | 4 $(2 \times 3) + 10 = \dots\dots\dots$ | 7 $4 + (20 \div 4) = \dots\dots\dots$ |
| 2 $(2 + 3) \times 10 = \dots\dots\dots$ | 5 $(5 \times 4) - 2 = \dots\dots\dots$ | 8 $(4 + 20) \div 4 = \dots\dots\dots$ |
| 3 $2 \times (3 + 10) = \dots\dots\dots$ | 6 $5 \times (4 - 2) = \dots\dots\dots$ | 9 $(100 \div 50) \times 2 = \dots\dots\dots$ |

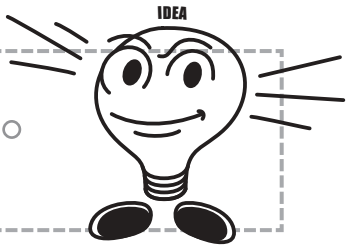
2 Brackets and letters



Example

$(a - 3) \times 2 = 14$. What is a ?

$7 \times 2 = 14$,
 $10 - 3 = 7$,
 so $a = 10$.



Work out the value of each letter.

- | | | |
|----------------------------|----------------------------|----------------------------|
| 1 $(3 \times 10) + b = 35$ | 4 $(e + 1) \div 2 = 3$ | 7 $6 + (h \div 3) = 13$ |
| $b = \dots\dots\dots$ | $e = \dots\dots\dots$ | $h = \dots\dots\dots$ |
| 2 $3 \times (10 + c) = 36$ | 5 $(f \times 3) - 10 = 11$ | 8 $(5 + i) \times 5 = 100$ |
| $c = \dots\dots\dots$ | $f = \dots\dots\dots$ | $i = \dots\dots\dots$ |
| 3 $(25 \div d) + 3 = 8$ | 6 $g \times (15 - 4) = 55$ | 9 $(100 \div j) + 25 = 75$ |
| $d = \dots\dots\dots$ | $g = \dots\dots\dots$ | $j = \dots\dots\dots$ |

Brackets



8

What's my sign?



9-10 correct 2 stars

7-8 correct 1 star

Complete each sentence.

Fill in each with +, −, × or ÷ to make a true number sentence:

$$1 \quad 423 \quad \square \quad 3 \quad = \quad 1269$$

$$2 \quad 858 \quad \square \quad 6 \quad = \quad 143$$

$$3 \quad 143 \quad \square \quad 159 \quad = \quad 302$$

$$4 \quad (240 \quad \square \quad 3) \quad - \quad 20 \quad = \quad 60$$

$$5 \quad 47 \quad \square \quad (5 \quad - \quad 2) \quad = \quad 141$$

$$6 \quad (141 \quad \square \quad 1) \quad \square \quad 10 \quad = \quad 130$$

$$7 \quad (75 \quad \square \quad 23) \quad \square \quad 18 \quad = \quad 70$$

$$8 \quad (17 \quad \square \quad 5) \quad \square \quad 10 \quad = \quad 75$$

$$9 \quad (2 \quad \square \quad 11) \quad \square \quad 2 \quad = \quad 20$$

$$10 \quad (500 \quad \square \quad 5) \quad \square \quad 5 \quad = \quad 95$$