SOLVING EQUATIONS WITH SINGLE BRACKETS

LO: To solve equations by expanding brackets.

25 September 2025

Week 5, Day 5

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MENTAL MATHS:

Write an equation for the word problems given in questions 1 to 5.

1. A number increased by 5 gives 2

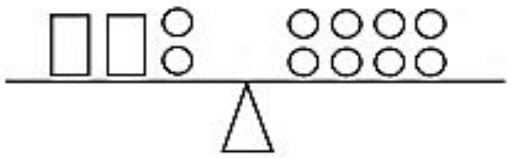
2. Double a number makes 16

3. A number divided by three equals fifteen

4. Two-thirds of a number is 7

5. Five is half of a number

6. How many circles are equal to one rectangle?



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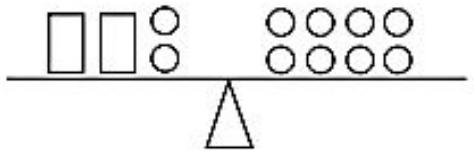
MENTAL MATHS (ANSWERS)

Write an equation for the word problems given in questions 1 to 5.	
1. A number increased by 5 gives 2	$x + 5 = 2$
2. Double a number makes 16	$2x = 16$
3. A number divided by three equals fifteen	$\frac{x}{3} = 15$
4. Two-thirds of a number is 7	$\frac{2}{3}x = 7$
5. Five is half of a number	$5 = \frac{1}{2}x$
6. How many circles are equal to one rectangle? 	3 circles

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STARTER:

Steve is asked to solve the equation $5(x + 2) = 47$

Here is his working.

$$\begin{aligned} 5(x + 2) &= 47 \\ 5x + 2 &= 47 \\ 5x &= 45 \\ x &= 9 \end{aligned}$$

Steve's answer is wrong.

What mistake did he make?

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GCSE/iGCSE Assessment Objective Specification – Foundation/Higher

A understand that symbols may be used to represent numbers in equations or variables in expressions and formulae

A understand the process of manipulating formulae or equations to change the subject, to include cases where the subject may appear twice or a power of the subject occurs

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PAIR TASK

Solve the following equations:

(a) $3(3a + 2) - 2(4a - 2) = 44$

$9a + 6 - 8a + 4 = 44$

$1a + 10 = 44$

$1a = 44 - 10$

$a = 34$

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KEY CONCEPT

My Turn

Solve the following equations:

(a) $5(4a + 2) = 70$

$20a + 10 = 70$

$20a = 70 - 10$

$20a = 60$

$a = 3$

Your Turn

(b) $4(2x - 4) = 32$

$= 8x - 16 = 32$

$8x = 32 + 16$

$8x = 48$

$x = 6$

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MINI PLENARY

What's missing?

You get 20 seconds to guess what's missing

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What's missing?

$$3(x-6)=21$$

$$?x - ?? = ??$$

$$?? = ??$$

$$x = ??$$

X = 3

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A ✓	understand the process of manipulating formulae or equations to change the subject, to include cases where the subject may appear twice or a power of the subject occurs

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CORE TASK

Solve the following equations. Remember your multiplication facts:

TASK 1:

1. $2(4x + 8) = 32$
2. $5(7x - 4) = 15$
3. $5(5x - 3) = 35$
4. $4(6x + 3) = 36$
5. $7(2x - 7) = 7$

TASK 2:

1) $3(2x + 1) + 2(4x + 2) = 35$
2) $2(x + 3) + 3(x + 1) = 24$
3) $4(3x - 2) + 8(x + 1) = 100$
4) $6(x + 2) + 4(3 - x) = 30$
5) $5(2x + 3) + 2(5x + 1) = 37$

TASK 3:

1) $2(3x + 1) - 3(x + 2) = 2$
2) $5(2x + 3) - 3(3x - 2) = 22$
3) $4(2x - 3) + 2(x - 4) = 10$
4) $3(4x - 2) + 5(x - 1) = 23$
5) $8(2x - 1) - 3(5x - 3) = 1$

- x + = -	+ x + = +
- x - = +	+ x - = -

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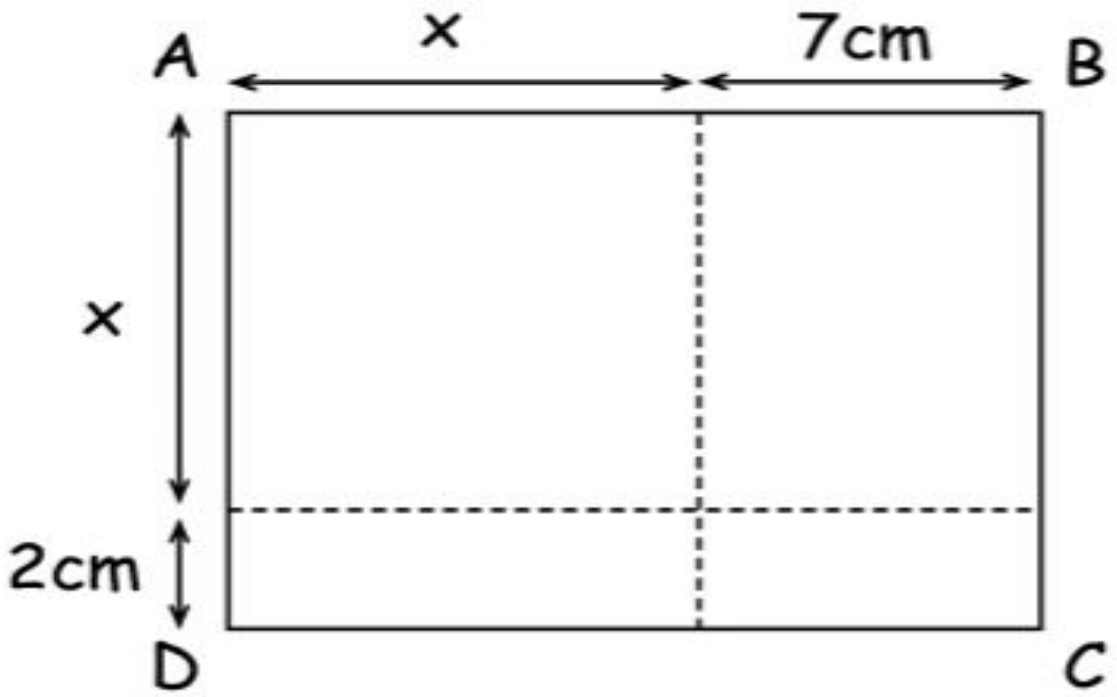
EXTENSION

Rectangle ABCD is shown below.



The area rectangle ABCD is 230cm²

Show that $x^2 + 9x = 216$

Plenary

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PLENARY ACTIVITY – SPOT THE MISTAKE

Find the mistakes:

1) $3(x + 6) = 3x + 6$
2) $9(p + 4) = p + 36$
3) $5(x^2 - 3) = 5x^2 - 15$
4) $c(c + 4) = c^2 + 4 + c$
5) $-3(x + 1) = -3x + 3$
6) $6(x + 5) = 6x + 11$
7) $8(w + 3) = w + 24$
8) $2(x^2 - 4) = 2x^2 + 8$
9) $f(e + 4) = ef + 4e$