



Linear equations

About 50 minutes No calculator 48 marks

Date _____

A Do Now

The first question is what today's lesson needs. The others bring back earlier topics.

- A1** Needed today [2 marks] **A2** From chapter 12 [2 marks]
Solve $4(x + 5) = 2(x + 19)$.

Answer

- A3** Last lesson [2 marks] **A4** Key Stage 3 [2 marks]
Work out $(2.6 \times 10^4) \times (4 \times 10^{-1})$. Give your answer in standard form.

Answer

Answer

Answer

B Example, then your turn

Your teacher works through each example with you. Then try the one beside it.

EXAMPLE 1

Solve $\frac{x+5}{4} = 3$.

Hint Multiply both sides by 4 first, then undo the +5.

B1 Solve $\frac{2x-3}{5} = 7$. [2 marks]

Answer

EXAMPLE 2

Solve $4(x+2) = 7x-13$.

Hint Expand the bracket. Then collect the x terms on the side with more x .

B2 Solve $3(2x-5) = 4x+9$. [3 marks]

Answer

C Practice

C1 Solve $\frac{x}{4} + 3 = 10$.

[2 marks]

Answer

C3 Solve $\frac{x+1}{3} = \frac{x+9}{5}$.

[2 marks]

Answer

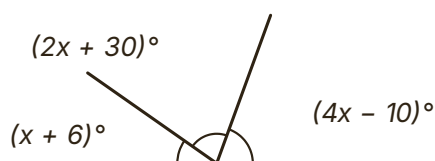
C5 Solve $\frac{x}{3} + \frac{x}{4} = 14$.

[2 marks]

Answer

C7 The diagram shows three angles on a straight line. Work out the size of the largest angle.

[3 marks]



Not drawn accurately

Answer

C2 Solve $5(2x - 1) - 3(x + 2) = 10$. [3 marks]

Answer

C4 The equation $3(x + k) = x + 20$ has the solution $x = 4$. Work out the value of k . [2 marks]

Answer

C6 Solve $5x + 3 = 2x + 8$. Give your answer as a fraction. [2 marks]

Answer

C8 The sum of three consecutive odd numbers is 147. Work out the largest of the three numbers. [2 marks]

Answer

D Exam-style questions

D1 Max solves $2x + 9 = 5x - 6$. He writes, " $2x - 5x = 9 - 6$, so $-3x = 3$ and $x = -1$."

[3 marks]

Explain what Max has done wrong, and solve the equation correctly.

Answer

D2 Gym A charges a joining fee of £40 and then £18 a month. Gym B charges a joining fee of £10 and then £24 a month.

(a) Write an expression for the cost, in pounds, of Gym A for m months.

[1 mark]

Answer

(b) Work out the number of months for which the two gyms cost the same.

[3 marks]

Answer

(c) Ana joins a gym for 12 months. Which gym is cheaper for her, and by how much?

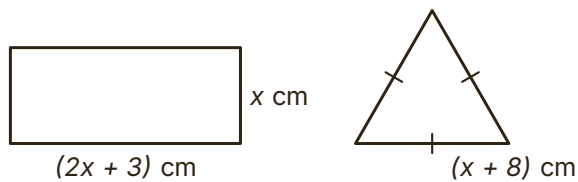
[2 marks]

Answer Gym by £

Total for D2: 6 marks

D3 The rectangle and the equilateral triangle have the same perimeter. Work out the area of the rectangle.

[4 marks]



Not drawn accurately

Answer

E Extension

No route is given. The hints are at the end of the sheet. Use one at a time.

E1 Sam has £ x . Tia has £15 more than Sam. Sam spends a third of his money and Tia spends £35. They now have the same amount of money. How much did Sam have at first?

[4 marks]

Answer

Extension hints

Cover these with paper. Uncover one at a time.

- E1** **Hint 1** Write an expression for what each of them has left.
Hint 2 Sam has $\frac{2x}{3}$ left and Tia has $x + 15 - 35 = x - 20$ left.
Hint 3 $\frac{2x}{3} = x - 20$, so $2x = 3x - 60$ and $x = 60$.

How did it go?

Colour one circle on each line: not yet, nearly, yes.

I can solve an equation with a fraction, a bracket or the unknown on both sides.

☐ ☐ ☐

I can write an equation from words or a diagram and solve it.

☐ ☐ ☐