"Full Coverage": Solving Linear Equations

This worksheet is designed to cover one question of each type seen in past papers, for each GCSE Higher Tier topic. This worksheet was automatically generated by the DrFrostMaths Homework Platform: students can practice this set of questions interactively by going to www.drfrostmaths.com/homework, logging on, *Practise → Past Papers/Worksheets* (or *Library → Past/Past Papers* for teachers), and using the 'Revision' tab.

Question 1

Categorisation: Solve a linear equation where the variable appears once, and with a negative coefficient.

[Edexcel IGCSE June2011-4H Q5b]

Solve $5 - 2y = 12$

.....

Question 2

Categorisation: Solve a linear equation where the variable appears once, involving brackets.

[Edexcel IGCSE Jan2014-4H Q3 Edited]

Solve $6(3y + 5) = 39$

.....

Question 3

Categorisation: Solve a linear equation where the variable appears once, involving a division.

[Edexcel IGCSE Jan2016-2F Q15c, Jan2016-4H Q9c]

Solve $\frac{3-5m}{4} = 8$

.....

Question 4

Categorisation: Solve a linear equation where the variable appears on one side of the equation, where the equation needs to be formed from a worded context.

[Edexcel GCSE Nov2015-2F Q23, Nov2015-2H Q3]

Ali is y years old. Bhavara is twice as old as Ali. Ceris is 3 years younger than Ali.

The total of their ages is 125 years.
Work out the age of each person.

Ali ..... years

Bhavara ..... years

Ceris ..... years

Question 5

Categorisation: Solve a linear equation where the variable appears on one side of the equation, involving algebraic fractions with integer denominators.

[Edexcel IGCSE Jan2015-4H Q12e Edited]

Solve

$$\frac{2x+1}{3}+\frac{x-5}{2}=4$$

.....

Question 6

Categorisation: Solve a linear equation where the variable appears on one side of the equation, collecting together like terms with fractional coefficients.

[Edexcel IGCSE May2016-4H Q15c]

Solve

$$\frac{2}{3}y+\frac{3}{8}y=5$$

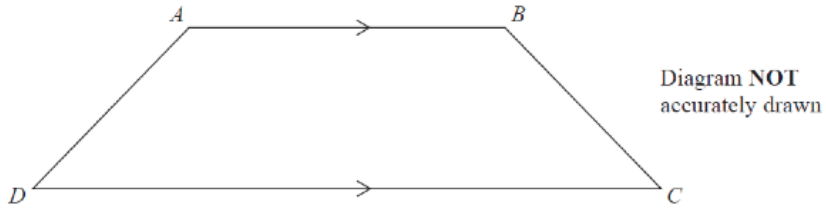
.....

Question 7

Categorisation: Solve a linear equation where the variable appears on one side of the equation, forming the equation in a geometric context involving lengths.

[Edexcel GCSE June2014-2F Q28, June2014-2H Q9]

The diagram shows a trapezium.



$AD = x$ cm, BC is the same length as AD. AB is twice the length of AD. DC is 4 cm longer than AB. The perimeter of the trapezium is 38 cm.

Work out the length of AD.

.....

Question 8

Categorisation: Solve a linear equation where the variable appears on both sides of the equation.

[Edexcel GCSE June2010-3H Q17b]

Solve $4(2x - 3) = 5x + 7$

.....

Question 9

Categorisation: Solve a linear equation where the variable appears on both sides of the equation, making use of cross-multiplication.

[Edexcel IGCSE May2012-3H Q9b Edited]

Solve

$$\frac{2y + 1}{3} = \frac{y - 2}{4}$$

.....

Question 10

Categorisation: Solve a linear equation where the variable appears on both sides of the equation, where one or both of the x terms has a negative coefficient.

[Edexcel IGCSE Jan2013-4H Q10 Edited]

Solve $3x + 16 = 1 - 2x$

.....

Question 11

Categorisation: Solve a linear equation where the variable appears on both sides of the equation, forming an equation using an isosceles triangle.

[Edexcel IGCSE May2013(R)-4H Q9]

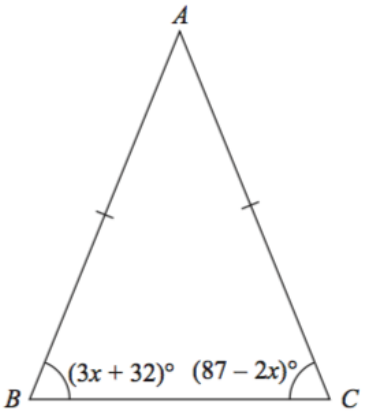


Diagram **NOT** accurately drawn

In the isosceles triangle *ABC*,
AB = *AC*
angle *B* = (3 x + 32)°
angle *C* = (87 – 2 x

Work out the value of x .

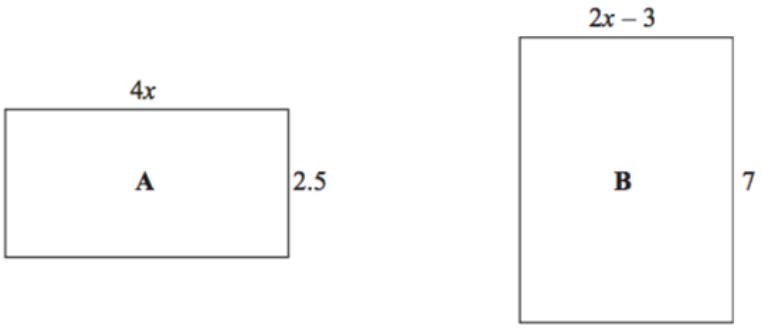
.....

Question 12

Categorisation: Solve a linear equation where the variable appears on both sides of the equation, in a geometric context involving lengths.

[Edexcel GCSE(9-1) Mock Set 3 Autumn 2017 2F Q21, 2H Q3]

Here are two rectangles.



All measurements are in centimetres.

The area of rectangle **A** is equal to the area of rectangle **B**.

Work out the perimeter of rectangle **B**.

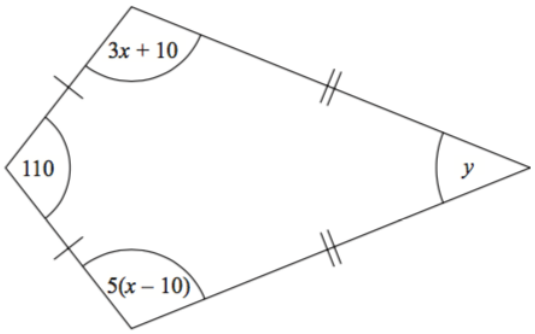
..... cm

Question 13

Categorisation: Solve a linear equation where the variable appears on both sides of the equation, forming an equation using a kite.

[Edexcel GCSE(9-1) Mock Set 3 Autumn 2017 1F Q23, 1H Q4]

Here is a kite.



All angles are measured in degrees. Work out the value of .

.....

Answers

Question 1

$$y = -3.5$$

Question 2

$$y = \frac{1}{2}$$

Question 3

$$m = -5.8$$

Question 4

Ali 32 years and Bhavara 64 years and Ceris 29 years

Question 5

$$x = \frac{37}{7}$$

Question 6

$$y = 4.8$$

Question 7

$$AD = \frac{17}{3}$$

Question 8

$$x = \frac{19}{3}$$

Question 9

$$y = -2$$

Question 10

$$x = -3$$

Question 11

$$x = 11$$

Question 12

29 cm

Question 13

$$y = 50$$