Name:

Level 2 Further Maths

Simultaneous Equations (both linear)

Corbettmaths

Ensure you have: Pencil or pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Revision for this topic

www.corbettmaths.com/more/further-maths/

1. Solve the simultaneous equations

$$2y = 4x - 18$$
$$2x = 15 + 3y$$

$4x - 2y = 18$
$2x - 3y = 15$

sub

$4x - 2y = 18$
$4x - 6y = 30$
$4y = -12$
$y = -3$

$-6 = 4x - 18$
$12 = 4x$
$x = 3$

$x = 3$
$y = -3$

(4)

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2. Solve the simultaneous equations

$$3x + 11y = 100$$
$$6x + 28 = 2y$$

$6x + 22y = 200$
(sub) $6x - 2y = -28$
$24y = 228$
$y = 9.5$

$6x + 28 = 19$
$6x = -9$
$x = -1.5$

$x = -1.5$
$y = 9.5$

(4)

3. Solve the simultaneous equations

$$\frac{y+2}{x-3} = -4 \qquad \frac{y-6}{x+5} = 2$$

$y+2 = -4x+12$

$4x+y = 10$

$4x-2y = -32$ sub

$3y = 42$

$y = 14$

$y-6 = 2x+10$

$2x-y = -16$

$2x-14 = -16$

$2x = -2$

$x = -1$

$x = -1$

$y = 14$

.....

(5)

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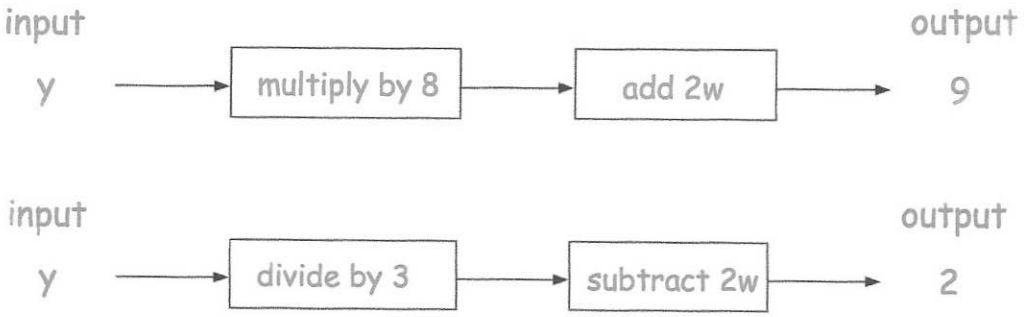
4. Here are two function machines, with the same input, y.



Work out the value of y

$8y + 2w = 9$

$\frac{y}{3} - 2w = 2$ add

$8\frac{1}{3}y = 11$

$y = 1.32$

$10.56 + 2w = 9$

$2w = -1.56$

$w = -0.78$

$y = 1.32$

.....

(4)

5. Barry buys 200 pieces of stationery for £76.
Of the 200 pieces of stationery, x of them are rulers that cost 50p each and y of them are pens that cost 20p each.

Find how many rulers Barry buys and how many pens he buys.

$x + y = 200$

$0.5x + 0.2y = 76$

$x + y = 200$

sub $x + 0.4y = 152$

$0.6y = 48$

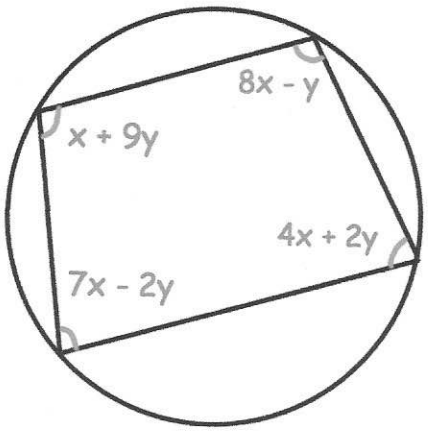
$y = 80$

$x = 120$

Number of rulers ..120.. Number of pens ..80..

(4)

6.



Shown is a cyclic quadrilateral.

Find the values of x and y.

$5x + 11y = 180$

$15x - 3y = 180$

$15x + 33y = 540$

$15x - 3y = 180$

$36y = 360$

$y = 10$

$5x + 110 = 180$

$5x = 70$

$x = 14$

x = 14 y = 10

(4)