FluidMaths

GCSE Mathematics (Grade 9-1)

Problem Solving
Simultaneous Equations Set 3 (Special Cases) Questions

The marks shown are for guidance purposes only

When not specified, round all non-terminating decimals during your calculations to 3 significant figures

Some useful strategies in problem-solving

- Read the question carefully
- Sketch a diagram where applicable
- Take note of key information
- Write down any formulae you may need
- Tackle the problem in bite-size rather than as a whole
- Concentrate on the part of the problem you understand and start from there
- Collaborate with a partner and share ideas
- Use a dictionary to find the meaning of any confusing words
- Check that your answers make sense in the context of the question

1 Given that

$$2y + 3x = 8k$$
$$y - x = 9k$$

Find x and y in terms of k

[5marks]

2 Given that

$$5y + kx = 10$$
$$5y - 3kx = -14$$

a) Find x in terms of k

b) Find the value y

[5marks]

3 Given that

$$3x + 5y = 3c$$
$$-4y - 2c = 2x$$

Express x and y in terms of c

[5marks]

4 Given that

$$3x + 4y = 5c$$
$$-y + 4c = x$$

Express x and y in terms of c.

[5marks]

5 Given that

$$3x + 6y = 11k$$
$$4x + 5k = 3y$$

Express x and y in terms of k.

[5marks]

6 Given that

$$3x + 5k = 8y$$
$$4y + 6x = 2k$$

Find x and y in terms of k

[6marks]

7 The equation of a straight line is $y = 2x + k$

The equation of another straight line is $y = \frac{4}{5}x + 4k$

What is the coordinate of the point of intersection between the two lines? Give your answer in terms of k

[5marks]

8 Line L_1 has equation $y = 3x - 5k$

Line L_2 has equation $y = 4x + 8k$

L_1 and L_2 intersect at P

a) Find the coordinate of P in terms of k

[3marks]

b) Given that $P = (19.5, m)$, find the value of m

[3marks]