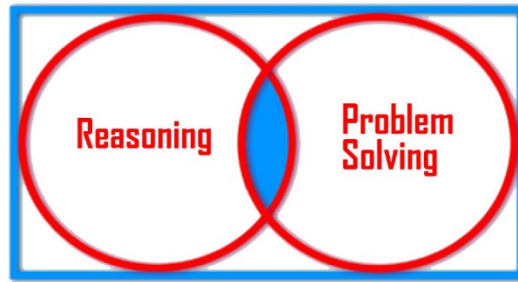


GCSE Foundation (5 – 1)



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Mathematical Reasoning Questions (Simultaneous Equations) – Set 1

**The marks shown are for guidance purposes only
[Total marks: 20 Marks]**

1 Markus wants to check whether $x = 2$ and $y = -1$ are the answers to the simultaneous equations below

$$3x + y = 8$$

$$5x - 2y = 15$$

Without solving the equations, explain what he could do.

[1Mark]

2 Given that $y = -3$ and $2y + 5x = 24$
Circle the value of x

a) 5

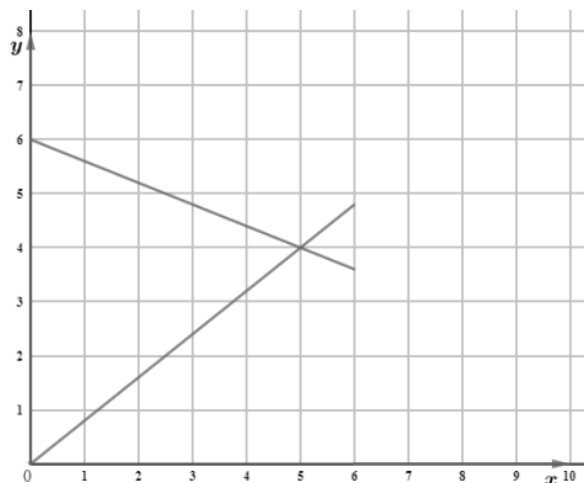
b) -5

c) 6

d) -6

[3Marks]

3 The graphs of $y = -\frac{2}{5}x + 6$ and $y = \frac{4}{5}x$ are shown on the grid below



Use the graph to find the solutions to the simultaneous equations

$$y = -\frac{2}{5}x + 6 \text{ and } y = \frac{4}{5}x$$

[1Mark]

4	<p>How could you check that, your answers in Question 3 above are correct?</p> <p style="text-align: right;">[1Mark]</p>
5	<p>Here is a pair of simultaneous equations</p> $5x + 3y = 10$ $6x - 3y = 21$ <p>Check whether the equations will solve when $x = 2$ and $y = 5$</p> <p style="text-align: right;">[1Mark]</p>
6	<p>Ishana is solving the simultaneous equations below</p> $6x - y = 20 \text{-----Equation 1}$ $3x + 2y = 35 \text{-----Equation 2}$ <p><u>Here is part of her Answer:</u></p> <p>Multiply Equation 1 by (2): $12x - 2y = 40 \text{-----Equation 3}$</p> <p>Add Equation 3 and Equation 2 together: $3x + 2y = 25$</p> $\begin{array}{r} 12x - 2y = 40 \\ \underline{3x + 2y = 25} \\ 15x = 75 \end{array}$ <p>Divide both sides by 15: $x = 5$</p> <p>Continue Ishana's solution to find the value of y</p> <p style="text-align: right;">[2Marks]</p>

7 If $x = 2a$ and $4y = 8x - a$

Choose the value of y

a) $3.75a$

b) $-3.75a$

c) $4.75a$

d) $-4.75a$



[2Marks]

8 Show that $x = 5$ and $y = \frac{1}{2}$ are **not** the solutions for the simultaneous equations below

$$2x + 8y = -15$$

$$-3x + 4y = 30$$



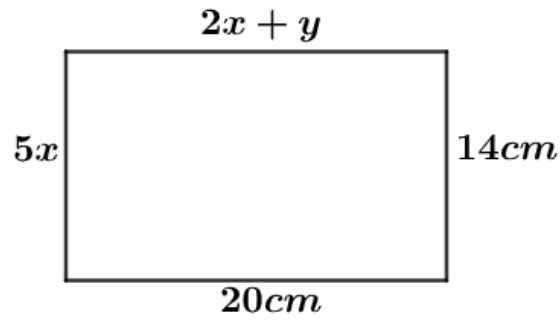
[1Mark]

9



Here is a rectangle.

Use information from the diagram to find the values of x and y



[3Marks]

10



Two mars bars and a bar of snickers cost £1.62

A mars bar and two bars of snickers cost £1.71

Could Harley buy 10 mars bars for £5?

[5Marks]