

# Questions: Introduction to simultaneous equations

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## Summary

Questions relating to the introduction to simultaneous equations study guide.

*Before attempting these questions, it is highly recommended that you read [Guide: Introduction to simultaneous equations](#).*

## Q1

Find how many solutions exist for the following sets of simultaneous equations.

1.1

$$x + 2y = 4$$

$$4x + 8y = 16$$

1.2

$$-2x + 3y = 6$$

$$4x - 6y = -12$$

1.3

$$3x + 4y = 2$$

$$8x + 2y = -1$$

## Q2

Solve for  $x$  and  $y$  in the following simultaneous equations using the substitution method.

2.1.

$$-5x + y = 3$$

$$3x + 2y = 12$$

2.2.

$$4x + 3y = 20$$

$$6x - 3y = 12$$

2.3.

$$7x - 2y = 13$$

$$2x + 3y = 17$$

2.4.

$$4x + y = 9$$

$$9x - y = 4$$

2.5.

$$3y = 7 - x$$

$$3x = 4 + y$$

### Q3

Solve for  $x$  and  $y$  in the following simultaneous equations using the elimination method.

3.1.

$$8x + 4y = 10$$

$$2x - 5y = 3$$

3.2.

$$5x + 6y = 19$$

$$4x - 9y = 6$$

3.3.

$$7x - 3y = 20$$

$$3x + 5y = 9$$

3.4.

$$\frac{x}{2} + 4y = 3$$

$$\frac{y}{3} - 2x = 1$$

3.5

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

$$2x - \frac{y}{3} = 5$$

## Q4

For the following sets of simultaneous equations, decide the best method (between the substitution and elimination method) and solve for  $x$  and  $y$ .

4.1.

$$5x + 2y = 7$$

$$2x - y = 4$$

4.2.

$$3x + 4y = 12$$

$$2x - 2y = 8$$

4.3.

$$x - 7y = 5$$

$$2x + 5y = 9$$

4.4

$$4x + 3y = 10$$

$$2x - 5y = -1$$

4.5

$$x - 3y = 5$$

$$2x + 5y = 9$$

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[After attempting the questions above, please click this link to find the answers.](#)

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## Version history

v1.0: initial version created 12/24 by Ollie Brooke as part of a University of St Andrews VIP project.

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