



National 5 Maths Simultaneous Equations

SQA past paper and specimen paper
questions and answers by topic

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Brian and Bob visit a ski resort. Brian buys 3 full passes and 4 restricted passes. The total cost of his passes is £185.

- (a) Write down an equation to illustrate this information. 1
- (b) Bob buys 2 full passes and 3 restricted passes.
The total cost of his passes is £130.
Write down an equation to illustrate this information. 1
- (c) Find the cost of a restricted pass and the cost of a full pass. 3
-

Answers:

Choosing f for the price of a full pass and r for price of a restricted pass:

- (a) $3f + 4r = 185$
- (b) $2f + 3r = 130$
- (c) Restricted pass: £20. Full pass: £35.

National 5 Maths
SQA 2014 Paper 2
Question 3

National 5 Maths

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Two groups of people go to a theatre.

Bill buys tickets for 5 adults and 3 children.

The total cost of his tickets is £158.25.

(a) Write down an equation to illustrate this information. 1

(b) Ben buys tickets for 3 adults and 2 children.

The total cost of his tickets is £98.

Write down an equation to illustrate this information. 1

(c) Calculate the cost of a ticket for an adult and the cost of a ticket for a child. 4

Answers:

Choosing a for the price of an adult ticket and c for price of a child's ticket:

(a) $5a + 3c = 158.25$

(b) $3a + 2c = 98$

(c) Adult ticket: £22.50. Child's ticket: £15.25.

National 5 Maths
SQA 2015 Paper 1
Question 11

Solve algebraically the system of equations

$$3x + 2y = 17$$

$$2x + 5y = 4.$$

3

Answer:

$$x = 7, y = -2$$



Charlie is making costumes for a school show.

One day he made 2 cloaks and 3 dresses.

The total amount of material he used was 9.6 square metres.

- (a) Write down an equation to illustrate this information. 1
- (b) The following day Charlie made 3 cloaks and 4 dresses.
The total amount of material he used was 13.3 square metres.
Write down an equation to illustrate this information. 1
- (c) Calculate the amount of material required to make one cloak and the amount of material required to make one dress. 4
-

Answers:

Choosing c for the amount of material in one cloak and d for the amount of material in one dress:

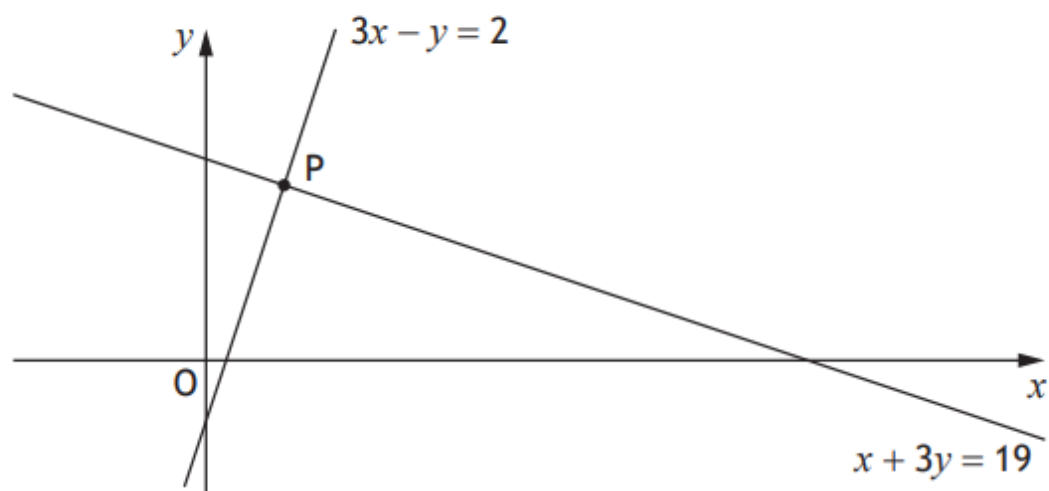
(a) $2c + 3d = 9.6$

(b) $3c + 4d = 13.3$

(c) One cloak: 1.5 m^2 . One dress: 2.2 m^2 .

The graph below shows two straight lines with the equations:

- $3x - y = 2$
- $x + 3y = 19$



The lines intersect at the point P.

Find, algebraically, the coordinates of P.

3

Answer:

(2.5, 5.5)

National 5 Maths
SQA 2018 Paper 1
Question 3

Solve, algebraically, the system of equations

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

$$6x - 2y = 5.$$

3

Answer:

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

John bought 7 bags of cement and 3 bags of gravel.
The total weight of these bags was 215 kilograms.

(a) Write down an equation to illustrate this information. 1

Shona bought 5 bags of cement and 4 bags of gravel.
The total weight of her bags was 200 kilograms.

(b) Write down an equation to illustrate this information. 1

(c) Calculate the weight of one bag of cement and the weight of one bag of gravel. 4

Answers:

Choosing c for the weight of a bag of cement and g for the weight of a bag of gravel:

(a) $7c + 3g = 215$

(b) $5c + 4g = 200$

(c) Bag of cement: 20 kg. Bag of gravel: 25 kg.

National 5 Maths
SQA 2021 Paper 1
Question 7

Solve, algebraically, the system of equations

$$5c + 2d = 4$$

$$4c - 3d = 17$$

3

Answer:

$$c = 2, d = -3$$

National 5 Maths
SQA 2022 Paper 2
Question 4

Moira buys 4 mangoes and 3 apples at a fruit shop.

The total cost is £4.25.

(a) Write down an equation to illustrate this information. 1

Sami buys 5 mangoes and 2 apples in the same fruit shop.

The total cost is £4.70.

(b) Write down an equation to illustrate this information. 1

(c) Calculate, algebraically, the cost of a mango and the cost of an apple. 4

Answers:

Choosing m for the price of a mango and a for the price of an apple:

(a) $4m + 3a = 4.25$ (or 425 if working in pence)

(b) $5m + 2a = 4.70$ (or 470 if working in pence)

(c) Mango 80p, apple 35p

National 5 Maths
SQA 2023 Paper 1
Question 3

Solve, algebraically, the system of equations

$$2x + 3y = 8$$

$$5x + 2y = -2.$$

3

Answer:

$$x = -2$$

$$y = 4$$

National 5 Maths
SQA 2024 Paper 1
Question 7

Solve, algebraically, the system of equations

$$2p - 7r = 11$$

$$3p + 2r = 4$$

3

Answer:

$$p = 2$$

$$r = -1$$

National 5 Maths
SQA 2025 Paper 2
Question 10

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On Bob's lorry there are 7 stacks of paving slabs and 3 stacks of edging blocks.
The total weight of these stacks is 2400 kilograms.

Let p be the weight of a stack of paving slabs and e be the weight of a stack of edging blocks.

(a) Write down an equation in p and e to illustrate this information. 1

Imran has 3 stacks of paving slabs and 4 stacks of edging blocks on his lorry.
The total weight of these stacks is 1300 kilograms.

(b) Write down an equation in p and e to illustrate this information. 1

Beth has 6 stacks of paving slabs and 5 stacks of edging blocks on her lorry.

(c) Calculate the **total weight** of the stacks of paving slabs and edging blocks on Beth's lorry. 4

Answers:

(a) $7p + 3e = 2400$

(b) $3p + 4e = 1300$

(c) $p = 300$ and $e = 100$, so total weight = 2300 kg