



National 5 Maths

Simultaneous Equations

(constructing and solving the 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
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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.

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SQA 2014 Paper 2
Question 3

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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.



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
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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 .



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.

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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