

The taste test - finding ingredients using direct proportion (L1)

Name: _____ Date: _____

You must show all your working out even if you use a calculator

1. Some students like their squash strong and use the ratio of 1:2 of squash to water

How many litres of water are needed to mix with 1 litre of squash?

I have bought 6 litres of orange squash. How many litres of water do I need? How much drink do I make altogether?

2a. Some students like their squash weak and use the ratio of 1:8 of squash to water

How many litres of water are needed to mix with 1 litre of squash?

I have bought 4 litres of orange squash. How many litres of water do I need?

How much drink do I make altogether?

2b. Using the ratio of 1:8 of squash to water,



How many litres of water are needed to mix with 100ml of squash?

I have 120ml of orange squash. How much water do I need?

How much drink do I make altogether?

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3a. Using the ratio of 1:4 of squash to water

How many litres of squash are needed to mix with 4 litre of water?

How many litres of squash are needed to mix with 12 litre of water?

I will use 16 litres of water. How many litres of orange squash do I need?

How much drink do I make altogether?

How many litres of squash are needed to mix with 800ml of water?

3b. You mix your orange squash in a ratio of 1:4.

How many litres of squash are needed to mix with 280ml of water?

I will use 3200ml of water. How many litres of orange squash do I need?

How much drink I make altogether?

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4a. Other students mixed their drink using the ratio of 1:6 of squash to water

How many litres of water are needed to mix with 1 litre of squash?

I have bought 12 litres of orange squash. How many litres of water do I need?

How much drink do I make altogether?

4b. Using the ratio of 1:6 of squash to water

How many litres of water are needed to mix with 11 litres of squash?

How many millilitres of water do I need to mix with 30ml of orange squash?

How much drink do I make altogether?

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Now try these further exercises.

5. A builder uses ratio to mix the mortar to build a wall.

The ratio of sand to cement is **4:1**

that means for every **4** shovels of sand, the builder needs **1** shovel of cement.

a) How many shovels of sand need to be added to two shovels of cement?

b) How many shovels of sand need to be added to five shovels of cement?

6. Here is a recipe for 10 scones.

225 g self-raising flour
pinch of salt
55 g butter
25 g caster sugar
150 ml milk

Rewrite the scones recipes for

a) 20 scones

b) 60 scones

c) How much castor sugar is to be used to make 30 scones?

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Answers

1. How many litres of water are needed to mix with 1 litre of squash? **2 litres**

Ratio is 1 : 2

1 litre : **2 litres**

(because there is twice as much water than squash in the mixture. $1 \times 2 = 2$)

I have bought 6 litres of orange squash. How many litres of water do I need? How much drink do I make altogether?

Ratio is 1 : 2

6 : ?

6 litre : **12 litres** = $6 + 12 = 18$ litres in total

(because there is twice as much water than squash in the mixture.

$6 \times 2 = 12$)

2a How many litres of water are needed to mix with 1 litre of squash? **8 litres**

Ratio is 1 : 8

1 litre: ?

1 litre : **8 litres**

(because there are eight times as much water than squash in the mixture. $1 \times 8 = 8$)

I have bought 4 litres of orange squash. How many litres of water do I need? How much drink I make altogether?

Ratio is 1 : 8

4/: ?

4 litres : **32 litres** = $4 + 32 = 36$ litres in total

(because there are eight times as much water than squash in the mixture. $4 \times 8 = 32$)

2b. Using the ratio of 1:8 of squash to water,

How many litres of water are needed to mix with 100ml of squash?

Ratio is 1 : 8

100ml: ?

100 ml : **800ml**

because there are 8 times as much water than squash in the mixture $100 \times 8 = 800$

I have 120ml of orange squash. How much water do I need? How much drink I make altogether?

Ratio is 1 : 8

120ml: ?

120 ml : **960ml**

because there are 8 times as much water than squash in the mixture $120 \times 8 = 960$

3a Using the ratio of 1:4 of squash to water

How many litres of squash are needed to mix with 4 litre of water?

Ratio is 1 : 4

? : 4 litres

1 l : 4 litres

(because there are four times as much water than squash in the mixture; You need to divide the water by 4 to find out how much squash. $4 \div 4 = 1$ litre)

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Answers

How many litres of squash are needed to mix with 12 litre of water?

Ratio is 1 : 4
 ? : 12 litres
 3 l : 12 litres

(because there are four times as much water than squash in the mixture; You need to divide the water by 4 to find out how much squash. $12 \div 4 = 3$ litres)

I will use 16 litres of water. How many litres of orange squash do I need? How much drink I make altogether?

Ratio is 1 : 4
 ? : 16litres
 4 l : 16 litres

(because there are four times as much water than squash in the mixture; You need to divide the water by 4 to find out how much squash. $16 \div 4 = 4$ litre)

How many litres of squash are needed to mix with 800ml of water?

Ratio is 1 : 4
 ? : 800 millilitres
 200ml : 800 ml

(because there are four times as much water than squash in the mixture; You need to divide the water by 4 to find out how much squash. $800 \div 4 = 200$ ml)

3b. You mix your orange squash in a ratio of 1:4.

How many litres of squash are needed to mix with 280ml of water?

Ratio is 1 : 4
 ? : 280 millilitres
 70ml : 280 ml

(because there are four times as much water than squash in the mixture; You need to divide the water by 4 to find out how much squash. $280 \div 4 = 70$ ml)

I will use 3200ml of water. How many litres of orange squash do I need? How much drink I make altogether?

Ratio is 1 : 4
 ? : 3200 millilitres
 800ml : 3200 ml

(because there are four times as much water than squash in the mixture; You need to divide the water by 4 to find out how much squash. $3200 \div 4 = 800$ ml)

4a. Other students mixed their drink using the ratio of 1:6 of squash to water

How many litres of water are needed to mix with 1 litre of squash?

Ratio is 1 : 6
 1 litre : ?
 1 litre : **6 litres**

(because there are six times as much water than squash in the mixture. $1 \times 6 = 6$ litres)

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Answers

I have bought 12 litres of orange squash. How many litres of water do I need? How much drink I make altogether?

Ratio is 1 : 6

12 litres : ?

12 litres : **72 litres** = $12 \times 6 = 72$

because there are six times as much water than squash in the mixture. $12 \times 6 = 72$

4b. Using the ratio of 1:6 of squash to water

How many litres of water are needed to mix with 11 litre of squash?

Ratio is 1 : 6

11 litres : ?

11 litres : **66 litres**

because there are six times as much water than squash in the mixture. $11 \times 6 = 66$

How many millilitres of water do I need to mix with 300ml of orange squash? How much drink I make altogether?

Ratio is 1 : 6

300 **ml** : ? millilitres

300**ml** : **1800 ml**

(because there are six times as much water than squash in the mixture; $300 \times 6 = 1800\text{ml}$ or 1.8l)

5. The ratio of sand to cement is **4:1**,

that means for every **4** shovels of sand, the builder needs **1** shovel of cement.

a) How many shovels of sand need to be added to two shovels of cement? **8 shovels**

b) How many shovels of sand need to be added to five shovels of cement? **20 shovels**

6) Here is a recipe for 10 scones.

225 g self-raising flour pinch of salt

55 g butter

25 g caster sugar

150 ml milk

Rewrite the scones recipes for;

a) 20 scones

450 g self raising flour; 2 pinches of salt; 110 g butter; 50 g castor sugar; 300 ml milk

b) 60 scones

1350 g self raising flour; 6 pinches of salt ; 330 g butter ; 150 g castor sugar ; 900 ml milk

c) How much castor sugar is to be used to make 30 scones? **75 g**