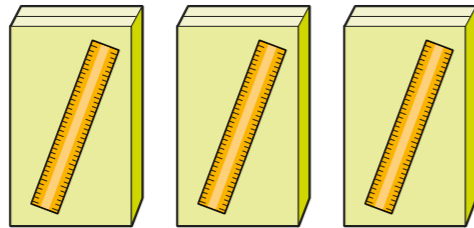


# Solve problems with direct proportion

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1 A shop sells school supplies.

Three boxes of rulers contain 150 rulers altogether.



a) How many rulers are there in 9 boxes?

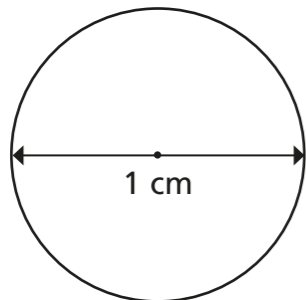
b) How many rulers are there in 27 boxes?

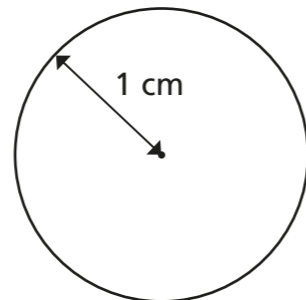
c) How many boxes do you need to buy to have 1,500 rulers?

How did you work out your answers? Talk about it with a partner.



2 a) Calculate the circumference of each circle.






b) Annie says that the circumference of a circle is directly proportional to its diameter.

Do you agree with Annie? \_\_\_\_\_

Discuss your reasons with a partner.



3 Here is a recipe for 8 cupcakes.

### Cupcakes (makes 8)

- 100 g butter
- 100 g sugar
- 2 eggs
- 1 tsp vanilla extract
- 120 g flour
- 4 tbsp milk

a) Complete these recipe cards.

### Cupcakes (makes 4)

- butter
- sugar
- eggs
- vanilla extract
- flour
- milk

### Cupcakes (makes 24)

- butter
- sugar
- eggs
- vanilla extract
- flour
- milk

### Cupcakes (makes 1)

- butter
- sugar
- eggs
- vanilla extract
- flour
- milk

### Cupcakes (makes )

- butter
- sugar
- 16 eggs
- vanilla extract
- 960 g flour
- milk

b) Mo has half a kilogram of butter.

What is the greatest number of cupcakes he can make using this recipe?

- 4 At a service station, 6 litres of petrol costs £9



- a) How much does 60 litres of petrol cost?

- b) How much does 24 litres of petrol cost?

- c) How much does 2 litres of petrol cost?

- d) How many litres of petrol can you buy for £45?

- e) How many litres of petrol can you buy for £4.50?

- f) Write an expression for the cost of  $x$  litres of petrol.

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- g) Write an expression for the number of litres of petrol that can be bought for £ $y$ .

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- 5 The mass of a piece of rope is in direct proportion to its length.  
Complete the table.

Length of rope	Mass of rope
80 m	5 kg
	30 kg
20 m	
2 m	

- 6 Are these statements true or false? Explain your answers.

- a) 5 gallons of water weigh 8 lbs, so 25 gallons of water weigh 40 lbs.

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- b) 8 chocolate bars cost £5, so 2 chocolate bars cost £1.50

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\_\_\_\_\_

- c) Henry the 8th had 6 wives, so Henry the 4th had 3 wives.

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\_\_\_\_\_

- d) The length of 12 identical toy cars is 132 cm, so the length of 240 of the same toy cars is 26.4 m.

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- 7 40 g of ginger are needed to make 16 gingerbread men.

Annie wants to make 60 gingerbread men.

She has 140 g of ginger. Is this enough? \_\_\_\_\_

Explain your answer.

\_\_\_\_\_

\_\_\_\_\_

