

# Find the original amount given the percentage greater than 100%

1 Annie and Tommy are solving a problem.

## The biscuit problem

A special pack of CobHob biscuits weighs 300 g and contains 20% extra free.

How much does a normal pack of CobHob biscuits weigh?

### Annie's working

20% extra means  
the normal pack is  
80% of 300 g.  
 $0.8 \times 300 = 240$  g

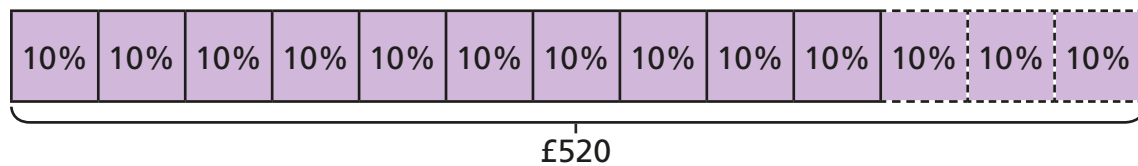
### Tommy's working

20% extra means  
120% is 300 g.  
So 10% is  $300 \div 12 = 25$ ,  
so 100% is  $25 \times 10 = 250$  g

Who do you agree with? \_\_\_\_\_

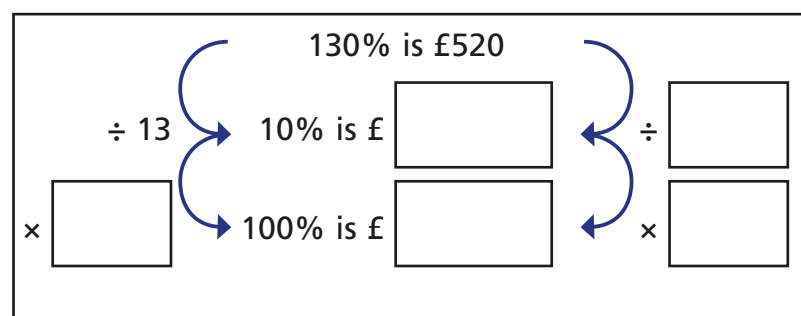
Why?

2 Ms Rose rents a flat. The cost of her rent is increased by 30% to £520

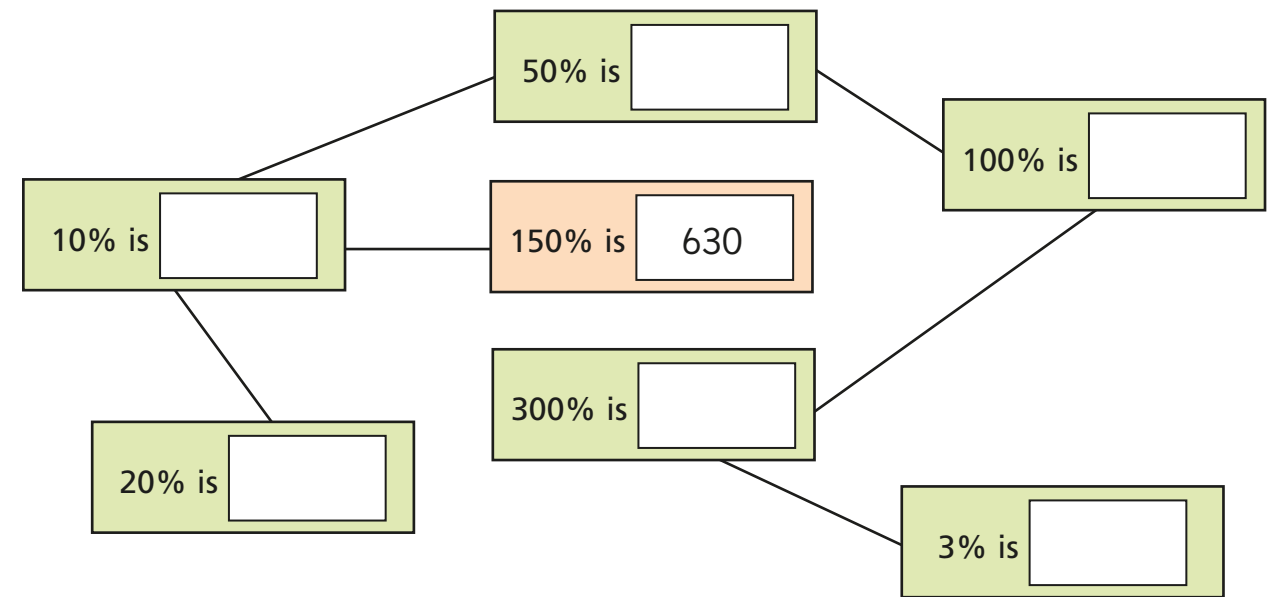


Complete the calculations to work out the cost of Ms Rose's rent before the increase.

$$100\% + 30\% = \boxed{\phantom{00}}\%$$



3 Complete the spider diagram.



What strategies did you use to find the missing numbers?

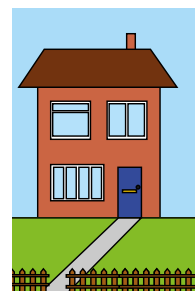
What other percentages can you easily work out?

4 A number is increased by 20%. Work out the original number if:

a) the result is 600

b) the increase is 600

- 5 Mr Trent's mortgage payments increase by 5%.  
His mortgage payments are now £914.76  
How much were his payments before the increase?  
Circle your answer.



£869.02

£871.20

£960.50

£45.74

- 6 Eva has solved three percentage problems but has mixed up the cards and the solutions. Match the problems with the solutions.

Mr Khan's salary after a 15% pay rise is £2,346  
What was his salary before the pay rise?

$15\% = £2,346$   
 $1\% = £2,346 \div 15 = £156.40$   
 $100\% = £156.40 \times 100 = £15,640$

Mrs Jones buys a second-hand car. She gets a 15% discount and pays £2,346  
How much was the car before the discount?

$100\% + 15\% = 115\%$   
 $115\% = £2,346$   
 $1\% = £2,346 \div 115 = £20.40$   
 $100\% = £20.40 \times 100 = £2,040$

Ms Rose buys a new car. She pays a 15% deposit of £2,346  
How much does the car cost altogether?

$100\% - 15\% = 85\%$   
 $85\% = £2,346$   
 $1\% = £2,346 \div 85 = £27.60$   
 $100\% = £27.60 \times 100 = £2,760$

- 7 The price of all railway season tickets to and from London is increased by 6%.  
a) The price of the annual season ticket between London and Stansted is now £5,777  
Work out the price of the season ticket before the increase.

£

- b) The **increase** in the price of the season ticket for London to Brighton is £282  
Work out the new price of the season ticket.

£

- 8 In its first month in a greenhouse, the height of a tropical plant increases by 20%.  
In its second month, the height increases by 25%.  
After two months, the height is 270 cm.

- a) Explain why the height of the plant has not increased by 45% altogether.

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- b) Find the height of the plant before it was put in the greenhouse.

cm

