

## Expressing as a percentage

1. In an examination Hazel scores 68 out of 80. Express her mark as a percentage.

2. The table opposite shows the number of pupils in each year group in Riverbank Academy. The school roll is 680.

Year Group	No. of pupils
S1	125
S2	148
S3	137
S4	154
S5/6	116

Express as a percentage of the school roll

- (a) the number of pupils in S2.  
(b) The total number of pupils in S4 and S5/6.

3. A beehive contains 56 000 bees. Of these, 2050 are male bees. What percentage of the bees is male?



4. A box contains 240 pens. 175 of the pens are black and the rest are blue. What percentage of the pens in the box is blue?

5. A bicycle normally costing £180 is sold in a sale at a discount of £50. Express the saving on the bicycle, if bought in the sale, as a percentage.



6. In the year 2005, Roger Federer played 85 matches. Of these matches he won 81. Express the number of matches he won that year as a percentage of the total matches he played.



7. David bought a second car in 2009 for £5600. He sold the car in 2011 for £3750. Express the loss David made on the car as a percentage.



8. The table below shows the votes in a local election.

Party	SNP	Labour	Liberal	Conservative	Green
No. of votes	2190	1375	326	768	541

- (a) Express the SNP vote as a percentage of the total number of votes cast.  
(b) There were 9550 people entitled to vote in the election. Express the Liberal vote as a percentage of the number of people entitled to vote in the election.

9. A bottle of champagne costs £24.99. A crate of champagne contains 12 bottles. A crate of champagne can be bought for £250.  
Express the saving made by buying a crate of champagne instead of 12 individual bottles.



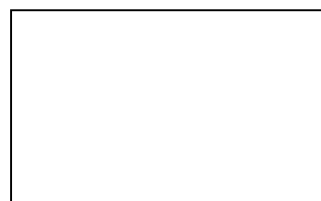
10. A computer costing £650 is sold in a sale for £499. Nadia buys the computer in the sale. Express the saving Nadia makes as a percentage.



11. Mark buys a suit in a sale. The suit normally costs £275 but is sold in a sale for £199. Express Mark's saving as a percentage.

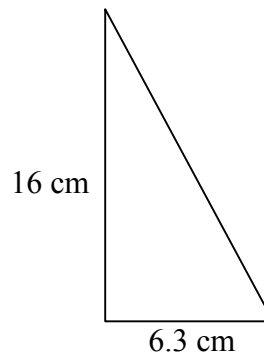


12.



15 cm

9.2 cm



16 cm

6.3 cm

The diagram above shows a rectangle and a right-angled triangle.  
Express the area of the triangle as a percentage of the area of the rectangle.

13. A die is thrown 250 times. The results are shown in the table.

- (a) Express the number of times the die landed as a 6 as a percentage of the total number of throws.  
(b) Express the number of times the die landed as an even number as a percentage of the total number of throws.

Throw	Frequency
1	47
2	41
3	50
4	53
5	28
6	31

14. The population of Scotland fell from 5 235 600 in 1971 to 5 090 700 in 1989. Express the fall in population from 1971 to 1989 as a percentage of the population in 1971.



15. The Lord of the Rings series of films cost \$93 500 000 to make. At the box office, world wide, the film took in \$1.119 billion (\$1 119 000 000). Express the profit made by the films as a percentage of the cost of making them.

16. Below are shown the lengths of 12 crocodiles in metres.

4.2 5.4 6.1 5.5 4.9 4.2 7.1 7.5 5.9 6.2 6.1 3.9

Express as a percentage the number of crocodiles over 6 metres in length.



17. A shopkeeper buys shirts for £12.50 each. He sells each shirt for £29.50. Express the profit he makes on each shirt as a percentage.



18. Amanda is a psychologist. In 2010 she earned £38500. In 2011 her wage increased to £39975. Express the wage increase Amanda was given as a percentage.

19. The volume of the planet Earth is 1 080 000 million cubic kilometres. The volume of water on the earth is 1372 million cubic kilometres. Express the volume of water on the Earth as a percentage of its total volume.



20. Michael wants to buy a sofa and two chairs. Their individual prices are shown below:

Sofa £675



Chair £295



As a group the total cost of the sofa and two chairs is £1095.

Express the saving Michael will achieve by buying the sofa and chairs as a group rather than buying them separately.