

PERCENTAGES II - PERCENTAGE INCREASE AND DECREASE

1) Write down the multiplying factor needed to increase a quantity by:

(a) 15% (b) 8% (c) 17% (d) 50% (e) 13.2% (f) 100% (g) 125% (h) 30%

2) Write down the multiplying factor needed to decrease a quantity by each percentage in Q1 (NB one is not possible).

3) Find the percentage increase if:

(a) 160 is increased to 180 (b) 2.3 is increased to 2.6
(c) 8 is increased to 8.60 (d) 120 is increased to 312

4) Find the percentage decrease if:

(a) 200 is decreased to 180 (b) 2.6 is decreased to 2.3
(c) 8 is decreased to 7.40 (d) 312 is decreased to 120

Think about the similarities and differences between the answers to Q3 and Q4.

5) This year the number of children born in a town was 2756. It is estimated that next year the figure will be 12% higher. How many births are expected next year?

6) A car firm decides to reduce all the prices of its cars by 15% for a special promotion. What will be the new price of a car previously costing £9400?

7) The cost price to a shop of its electric toasters is £14.50. It sells them at £20.99. Find the percentage profit which the shop makes.

8) A man's salary this year is £21600.

(a) He is hoping for a 6% increase this year. What would his new salary be?
(b) In fact his salary increases to £22500. What percentage increase was this?

9) The current rate of VAT is 17.5%. Find the full price of the following items:

(a) A bathroom suite priced at £229 + VAT
(b) An estimate for repairing a roof of £1850 + VAT.

10) The number of cases of burglary in a village increased from 28 last year to 41 this year. What percentage increase was this?

11) One sign in a shop window states "Please add VAT at 17.5% to all prices". Another advertises "Winter Sale - 30% off all marked prices". I can see a washing machine marked £349. How much would I have to pay for it:

(a) if the VAT is added first, and then 30% of the full price subtracted.
(b) if the 30% discount is subtracted first, and then VAT charged on the discounted price?

12) On a hot day a metal girder 8.2 metres long expands by 6cm. Find the percentage expansion in the girder.

13) A shop buys a batch of 40 electronic games at £6.40 each, and puts them on sale with a markup of 45%.

(a) What price was the shop selling the games for?

The shop sold 28 of the games at this price before the craze for the game died down, and then managed to sell the rest as "bargain buys" for £3.99 each.

(b) What percentage profit did the shop make on the whole batch?

14) A company expects to cut its workforce by 8% this year. At present it has 23500 employees.

(a) What is the projected size of the workforce at the end of the year?

(b) In fact at the end of the year the workforce is 20700. What is the actual percentage reduction in the workforce?

15) A girl opens a building society account with £240, after which she neither pays any more money in, or draws any out. The account pays 8.4% interest per annum.

(a) How much will the girl have in the account after 1 year?

(b) Assuming the rate of interest stays the same, how much will the girl have in the account after (i) 2 years (ii) 3 years?