

Increasing and Decreasing Quantities by a Percentage



Exercises

- Add 10% to:
(a) £40 (b) £136 (c) £262
- Reduce the following prices by 20%:
(a) £50 (b) £92 (c) £340
- | | |
|---------------------------|---------------------------|
| (a) Increase 40 m by 30% | (b) Increase £60 by 5% |
| (c) Increase £66 by 20% | (d) Increase 80 kg by 40% |
| (e) Increase £1000 by 30% | (f) Decrease £60 by 25% |
| (g) Reduce 70 kg by 5% | (h) Reduce £90 by 15% |
| (i) Increase 40 m by 7% | (j) Increase £18 by 4% |
- A computer costs £600. In a sale there is a 20% discount on the price of the item. Calculate the sale price of the computer.
- A shopkeeper increases all the prices in his shop by 4%. What is the new price of each of the items below? Give your answers to the nearest penny.

<i>Box of chocolates</i>	£3
<i>Bag of flour</i>	75p
<i>Packet of sweets</i>	50p
<i>Tin of beans</i>	20p
<i>Can of drink</i>	45p
- A CD player costs £90. In a sale the price is reduced by 25%. Calculate the sale price.
- A certain type of calculator costs £8. A teacher buys 30 of these calculators for her school and is given a 20% discount. How much does she pay in total?
- Add $17\frac{1}{2}\%$ VAT to the following prices, giving your answers to the nearest pence:
(a) £400 (b) £22 (c) £65
- The population of a town is 120 000. What is the total population of the town after a 5% increase?
- Hannah invests £800 in a building society. Every year 5% interest is added to her money.
 - Explain why, after 2 years she has £882 in her account.
 - How much money does she have after 5 years? (Give your answer to the nearest pence.)

Reverse Percentage Calculations



Exercises

1. In a sale the prices of all the clothes in a shop are reduced by 20%. Calculate the original prices of the items below:

<i>Item</i>	<i>Sale Price</i>
Jeans	£36
Coat	£56
Shirt	£14

2. The price of a car is increased by 4% to £12 480. What was the original price?
3. The amount that Jason earns for his paper round is increased by 2% to £21.93 per week. How much *extra* money does Jason now get each week?
4. A special value packet of breakfast cereal contains 25% more than the standard packet. The special value packet contains 562.5 grams of cereal. How much does the *standard* packet contain?
5. The bill for repairing a computer is £29.38 which includes VAT at $17\frac{1}{2}\%$. What was the bill before the VAT was added?
6. The height of a plant increases by 18%, to 26 cm. Calculate the original height of the plant, correct to the nearest cm.
7. A 3.5% pay rise increases Mr Smith's annual salary to £21 735. What was his original salary?
8. The price of a bike in a sale is £145. If the original price has been reduced by $12\frac{1}{2}\%$, what was the original price? (Give your answer to the nearest pence.)
9. Alice carries out an experiment to record how quickly plants grow. One plant increases in height from 12.0 cm to 13.8 cm in one week. A second plant increases by the same percentage to 16.1 cm. What was the original height of the second plant?
10. James buys a computer. The seller reduces the price by 30% and adds VAT at 17.5%. If James pays £1551 for the computer, what was its original price? (Give your answer to the nearest pence.)

Increasing and Decreasing Quantities by a Percentage

- (a) £44 (b) £149.60 (c) £288.20
- (a) £40 (b) £73.60 (c) £272
- (a) 52 m (b) £63 (c) £79.20 (d) 112 kg (e) £1300
(f) £45 (g) 66.5 kg (h) £76.50 (i) 42.8 m (j) £18.72
- £480
- | | | |
|-------------------|-------|-------|
| Box of chocolates | £3.12 | £3.12 |
| Flour | £0.78 | 78p |
| Sweets | £0.52 | 52p |
| Beans | £0.21 | 21p |
| Drink | £0.47 | 47p |
- £67.50
- £192
- (a) £470 (b) £25.85 (c) 76.38
- 126 000 people
- (a) End 1st year $800 \times 1.05 = £840$
End 2nd year $840 \times 1.05 = £882$
(b) £1021.03 (nearest pence)

Reverse Percentage Calculations

- | | |
|-------|--------|
| Jeans | £45 |
| Coat | £70 |
| Shirt | £17.50 |
- £12 000
- 43p
- 450 gm
- £25
- 22 cm
- £21 000
- £165.71 (nearest pence)
- 14 cm
- £1885.71 (nearest pence)