

REVERSE PERCENTAGES

Task 1 (Non-calculator)

- 1) 15% of a number is 9. What is the number?
60
- 2) 25% of a number is 12. What is the number?
48
- 3) 40% of a number is 36. What is the number?
90
- 4) 60% of a number is 48. What is the number?
80
- 5) 5% of a number is 7. What is the number?
140
- 6) 80% of a number is 56. What is the number?
70
- 7) 12% of a number is 18. What is the number?
150
- 8) 70% of a number is 35. What is the number?
50

Task 2 (Non-calculator)

- 9) A bill has increased by 20% and now costs £72. What was the original cost of the bill?

$$100\% + 20\% = 120\%$$

$$£72 = 120\%$$

$$£0.60 = 1\%$$

$$£60 = 100\%$$

$$\textbf{£60}$$

- 10) A bicycle was reduced in price by 25% to £180. What was the original price of the bicycle?

$$100\% - 25\% = 75\%$$

$$£180 = 75\%$$

$$£2.40 = 1\%$$

$$£240 = 100\%$$

$$\textbf{£240}$$

- 11) A cinema ticket price increased by 15% to £11.50. What was the original ticket price?

$$100\% + 15\% = 115\%$$

$$£11.50 = 115\%$$

$$£0.1 = 1\%$$

$$£10 = 100\%$$

$$\textbf{£10}$$

- 12) After a 10% discount, a shirt cost £27. What was the original price of the shirt?

$$100\% - 10\% = 90\%$$

$$£27 = 90\%$$

$$£0.3 = 1\%$$

$$£30 = 100\%$$

$$\textbf{£30}$$

- 13) A school trip fee rose by 20%. The increase was £8. What was the original trip fee?

$$£8 = 20\%$$

$$£40 = 100\%$$

$$\textbf{£40}$$

- 14) A laptop was reduced by 30% to £560. What was the original price of the laptop?

$$100\% - 30\% = 70\%$$

$$£560 = 70\%$$

$$£8 = 1\%$$

$$£800 = 100\%$$

$$\textbf{£800}$$

- 15) After a 12% increase, a train ticket now costs £33.60. What was the original ticket cost?

$$100\% + 12\% = 112\%$$

$$£33.60 = 112\%$$

$$£0.3 = 1\%$$

$$£30 = 100\%$$

$$\textbf{£30}$$

- 16) A mobile phone contract was reduced by 40% to £18 a month. What was the original cost of the phone contract?

$$100\% - 40\% = 60\%$$

$$£18 = 60\%$$

$$£0.3 = 1\%$$

$$£30 = 100\%$$

$$£30$$

- 17) A TV went on sale with 15% off and cost £425. What was the original price of the TV?

$$100\% - 15\% = 85\%$$

$$£425 = 85\%$$

$$£5 = 1\%$$

$$£500 = 100\%$$

$$£500$$

Task 3 (Calculator)

- 18) The price of a laptop increased by 17% to £234. Find the original price of the laptop.

$$£234 \div 1.17 = £200$$

$$£200$$

- 19) After a 28% discount, a table cost £342. Find the original price of the table.

$$£342 \div 0.72 = £475$$

$$£475$$

- 20) An investment grew by 45% to £2,174. Find the starting value of the investment.

$$£2174 \div 1.45 = £1499.3103...$$

$$£1499.31$$

- 21) After a 63% drop, the value of shares is £814. Find the original value of the shares.

$$£814 \div 0.37 = £2200$$

$$£2200$$

- 22) A club membership rose by 6.5% to £215. Find the original fee of the membership.

$$£215 \div 1.065 = £201.8779...$$

$$£201.88$$

Challenge (Calculator)

- 23) A TV was reduced by 15% in a summer sale, then reduced by another 10% in a clearance sale. The final price was £459. What was the original price of the TV?

$$£459 \div 0.9 = £510$$

$$£510 \div 0.85 = £600$$

$$£600$$

- 24) A phone increased in price by 8%, then again by 12%. The final price was £605.76. What was the original price of the phone?

$$£605.76 \div 1.12 = £540.8571... = \text{ans}$$

$$\text{ans} \div 1.08 = £500.7936...$$

$$£500.79$$

- 25) A jacket was reduced by 25%, then an extra £15 off voucher was applied. The final price was £60. What was the original price?

$$£60 + £15 = £75$$

$$£75 \div 0.75 = £100$$

$$£100$$

- 26) A laptop increased in price by 30% over 2 years. The first year it increased by 12%. What was the percentage increase in the second year if the original price was £500? Give your answer to two decimal places.

Final price:

$$£500 \times 1.3 = £650$$

$$£650 \div 1.12 = £580.3571...$$

$$£500 \times (1 + x) = £580.3571 ...$$

$$1 + x = 1.1607 ...$$

$$x = 0.1607 ...$$

$$16.07\% (2 \text{ dp})$$