

**CHAPTER 5 Percentages**

For all but the best pupils, the early work in this chapter requires constant revision. The rest of this chapter concentrates on percentage increase and decrease in a variety of situations. It is the vocabulary and not the mathematics that often leads to difficulty here, so make sure that the pupils understand terms such as VAT, depreciation, percentage profit, etc.

**EXERCISE 5a (p. 76)**

Fraction	Percentage	Decimal
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1. $\frac{3}{5}$	60%	0.6
2. $\frac{2}{5}$	40%	0.4
3. $\frac{11}{20}$	55%	0.55
4. $\frac{17}{20}$	85%	0.85
5. $\frac{27}{50}$	54%	0.54
6. $\frac{6}{25}$	24%	0.24
7. $\frac{23}{25}$	92%	0.92
8. $\frac{21}{25}$	84%	0.84
9. $\frac{37}{40}$	$92\frac{1}{2}\%$	0.925
10. $\frac{2}{3}$	$66\frac{2}{3}\%$	$0.\dot{6}$

11. 24%	19. 2%	27. 189g	35. 30%	43. 31.59
12. 64%	20. 27%	28. $42\text{m}^2$	36. 89.6%	44. 172
13. 20%	21. 40%	29. 2.5%	37. 949	45. 64.68
14. 40%	22. 225%	30. 2%	38. 1007	46. 294
15. 25%	23. 75	31. 1.5%	39. 627	47. 5.74
16. 34%	24. 92p	32. 2.5%	40. 381	48. 59.4kg
17. 5%	25. 0.61cm	33. 2.4%	41. 49.28	49. £9675
18. 2.5%	26. 0.54km	34. 60%	42. 348	50. 102

**EXERCISE 5b (p. 81)**

Numbers 23–30: Many teachers may prefer to use the idea of a multiplying factor as a slight variation of Method 2 in the worked example.

i.e. if the rate of VAT is 15%

$$\text{Purchase price} = \text{marked price} \times 1.15 \text{ or } \frac{115}{100}$$

The idea may be used in many problems on percentages.

1. 25%	8. 24%	15. £12	22. the same
2. 30%	9. £56	16. £21.60	23. £34.50
3. 25%	10. £72	17. £18	24. £75.52
4. 10%	11. £60.90	18. £24.30	25. £9.87
5. 20%	12. £18	19. £21	26. £43.70
6. 20%	13. £27	20. (b) by £8	27. £690
7. 15%	14. £80	21. (b) by 70p	28. £9.20

**EXERCISE 5c (p. 83)**

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|----------|-----------|------------|------------|
| 1. £1500 | 7. £3300  | 13. £2950  | 19. £58    |
| 2. £2400 | 8. £2240  | 14. £2112  | 20. £33.60 |
| 3. £1950 | 9. £4000  | 15. £4270  | 21. £38.25 |
| 4. £3750 | 10. £7680 | 16. £28    | 22. £16.15 |
| 5. £1935 | 11. £1800 | 17. £92    | 23. £14.30 |
| 6. £2478 | 12. £2100 | 18. £25.60 | 24. £32.25 |

25. a) £12.20      b) £14.80

**EXERCISE 5d (p. 86)**

More teaching effort is usually required with this topic than for most other percentage questions. Multiplying factors can be used here.

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|----------|---------|------------|-----------|------------------------|
| 1. £70   | 7. £800 | 13. £200   | 19. £160  | 25. £92                |
| 2. £40   | 8. £900 | 14. £18    | 20. £2000 | 26. £12                |
| 3. £16   | 9. £800 | 15. £13.60 | 21. £120  | 27. £650               |
| 4. £6    | 10. £20 | 16. £50    | 22. £125  | 28. £160               |
| 5. £2.70 | 11. £40 | 17. £160   | 23. £260  | 29. 850cm <sup>3</sup> |
| 6. £32   | 12. £80 | 18. £17    | 24. £184  | 30. 25cm               |

**EXERCISE 5e (p. 88)**

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|--------------------|-------------------------|--------------------------|
| 1. £77.520         | 5. £1200                | 10. 44 275               |
| 2. £13.69          | 6. £37.50               | 11. a) £7.20    b) £6.60 |
| 3. $33\frac{1}{3}$ | 7. 212.5cm <sup>3</sup> | 12. £280                 |
| 4. 40%             | 8. £172                 |                          |
|                    | 9. 15 km/l              |                          |

**EXERCISE 5f (p. 90)**

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|------------|------------|---------|
| 1. £60     | 4. £925    | 7. 8.5% |
| 2. £731.35 | 5. £215.80 | 8. £500 |
| 3. £26.40  | 6. £373.76 | 9. £250 |

**EXERCISE 5g (p. 91)**

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|------------|------------|------------|--------------|
| 1. £42     | 4. £191.77 | 7. £252.68 | 10. £1093.50 |
| 2. £76.32  | 5. £143.99 | 8. £48 400 | 11. £12 800  |
| 3. £103.88 | 6. £206.72 | 9. £76     |              |