

CHAPTER 6 Multiplication and Division of Decimals**EXERCISE 6a (p. 93)**

Can be used for discussion.

- | | | | | |
|----------|-------------|-------------|-----------------|-----------|
| 1. 0.008 | 4. 0.06 | 7. 0.24 | 9. 0.0008 | 11. 0.018 |
| 2. 0.01 | 5. 0.0003 | 8. 0.000 48 | 10. 0.000 000 6 | 12. 0.008 |
| 3. 0.018 | 6. 0.000 04 | | | |

EXERCISE 6b (p. 94)

Not intended for use with a calculator but discretion is needed in Nos. 19–40.

- | | | | | |
|--------------|------------|---------------|-------------|---------------------|
| 1. 0.18 | 10. 0.0018 | 19. 0.1502 | 27. 22.4 | 35. 6.4 |
| 2. 0.0024 | 11. 0.042 | 20. 1.6 | 28. 0.0022 | 36. 0.08 |
| 3. 0.018 | 12. 0.72 | 21. 1.4 | 29. 0.03 | 37. 0.000 000 006 4 |
| 4. 0.000 56 | 13. 0.84 | 22. 0.000 912 | 30. 0.01408 | 38. 800 |
| 5. 0.0108 | 14. 0.036 | 23. 240 | 31. 0.64 | 39. 0.64 |
| 6. 0.000 021 | 15. 8.1 | 24. 63 | 32. 0.8 | 40. 0.008 |
| 7. 0.035 | 16. 0.0088 | 25. 0.112 | 33. 0.64 | 41. 0.0432 |
| 8. 4.8 | 17. 0.077 | 26. 2.048 | 34. 0.0008 | 42. 12.4 |
| 9. 0.0064 | 18. 0.28 | | | |

EXERCISE 6c (p. 95)

- | | | | | |
|-----------|----------------|---------------|------------|--------------|
| 1. 6.72 | 6. 0.4536 | 11. 8.97 | 16. 2.56 | 21. 1.722 |
| 2. 12.48 | 7. 33 | 12. 198 | 17. 2.56 | 22. 17.29 |
| 3. 0.0952 | 8. 0.000 278 8 | 13. 64.8 | 18. 2.56 | 23. 22.96 |
| 4. 1253.2 | 9. 7476 | 14. 0.111 52 | 19. 0.0784 | 24. 0.031 02 |
| 5. 434 | 10. 118.4 | 15. 0.002 592 | 20. 0.1054 | |

EXERCISE 6d (p. 96)

- | | | | |
|----------|-----------|--------------------|----------|
| 1. £325 | 3. 3.8kg | 5. 4216p or £42.16 | 7. 3.25m |
| 2. 4.4cm | 4. 16.8cm | 6. 0.24 | 8. 50.4m |

Recurring decimals: not necessary at this stage and can well be omitted with average ability pupils.

EXERCISE 6e (p. 97)

For above average pupils only.

- | | |
|-------------------------------------|-----------------------------------|
| 1. 0.233... 0.23 | 7. 0.444... 0.4 |
| 2. 0.002 727... 0.0027 | 8. 0.666... 0.6 |
| 3. 0.571 428 571... 0.571 428 | 9. 0.1818... 0.18 |
| 4. 0.143 33... 0.143 | 10. 0.714 285 714... 0.004 285 71 |
| 5. 0.004 285 714 28... 0.004 285 71 | 11. 0.777... 0.7 |
| 6. 0.1222... 0.12 | 12. 1.142 857 1428... 1.142 857 |

EXERCISE 6f (p. 99)

Discussion about quantities that can be given exactly, quantities that cannot be given exactly (e.g. measurements), quantities that can be given exactly but often are not (e.g. government statistics) is useful here.

1. 0.33	9. 0.01	17. 110	25. 0.001	33. 1.01
2. 0.32	10. 4.00	18. 6	26. 0.084	34. 0.0094
3. 1.27	11. 14	19. 74	27. 0.084	35. 0.735
4. 2.35	12. 6	20. 4	28. 0.325	36. 1.64
5. 0.04	13. 27	21. 0.363	29. 0.033	37. 1.6
6. 0.69	14. 3	22. 0.026	30. 4.000	38. 2
7. 0.84	15. 4	23. 0.007	31. 1.8	39. 3.50
8. 3.39	16. 7	24. 0.070	32. 42.6	40. 3.5

EXERCISE 6g (p. 100)

Calculators should be used except by the brightest children who should use them only for checking answers. At this point they will need to be shown how to give an answer correct to a specified number of decimal places, by reading the display to one more place than necessary.

1. 0.17 (0.165)	9. 0.24 (0.236)	16. 0.9 (0.88)	23. 1.7 (3)	30. 0.001 (0.0009)
2. 0.93 (0.927)	10. 0.04 (0.038)	17. 7.3 (7.29)	24. 27.3 (1)	31. 0.028 (4)
3. 0.35 (0.346)	11. 0.22 (0.216)	18. 1.2 (1.15)	25. 0.006 (0.0057)	32. 0.031 (0.0306)
4. 2.03 (3)	12. 0.95 (0.949)	19. 2.1 (4)	26. 0.018 (0.0175)	33. 0.016 (1)
5. 2.85 (3)	13. 4.1 (1)	20. 0.9 (4)	27. 0.417 (0.4166)	34. 0.019 (0.0188)
6. 0.16 (0.156)	14. 57.4 (2)	21. 9.7 (9.68)	28. 0.021 (0.0209)	35. 0.039 (3)
7. 0.04 (2)	15. 2.6 (2.55)	22. 0.6 (4)	29. 0.038 (0.0375)	36. 0.037 (0.0366)
8. 0.05 (0.047)				

EXERCISE 6h (p. 101)

Calculators should be used by all except the most able who can use them for checking.

1. 0.625	7. 0.0625	13. 0.167 (0.1666)	19. 0.333 (3)	25. 0.158 (0.1578)
2. 0.075	8. 1.375	14. 0.667 (0.6666)	20. 0.364 (0.3636)	26. 0.176 (4)
3. 0.1875	9. 0.52	15. 0.818 (1)	21. 0.214 (2)	27. 0.267 (0.2666)
4. 0.6	10. 0.0375	16. 0.857 (1)	22. 0.235 (2)	28. 0.389 (0.3888)
5. 0.36	11. 0.429 (0.4285)	17. 1.143 (1.1428)	23. 0.462 (0.4615)	29. 0.136 (3)
6. 0.14	12. 0.444 (4)	18. 0.111 (1)	24. 0.190 (4)	30. 0.121 (2)

Division by decimals: much class discussion is necessary before pupils are asked to work on their own.

EXERCISE 6i (p. 102)

Nos. 1–24 do not need a calculator. Nos. 25–36: benefit will be obtained from using a calculator but pupils need to be shown how to get an estimate.

1. 0.2	9. 60	16. 0.01	23. 0.004	30. 3.2
2. 0.02	10. 5	17. 100	24. 60	31. 1.2
3. 8	11. 13	18. 2.3	25. 0.8	32. 41

- | | | | | |
|---------|-----------|--------------|----------|----------|
| 4. 20 | 12. 120 | 19. 21 | 26. 900 | 33. 7 |
| 5. 4500 | 13. 800 | 20. 0.012 | 27. 0.31 | 34. 1.2 |
| 6. 12 | 14. 360 | 21. 0.001 71 | 28. 0.16 | 35. 9 |
| 7. 0.16 | 15. 0.012 | 22. 52 000 | 29. 24.5 | 36. 0.08 |
| 8. 6 | | | | |

EXERCISE 6j (p. 103)

Unless long division practice is required, all pupils should use a calculator.

- | | | |
|-------------------|--------------------|-----------------------|
| 1. 6.33 (3) | 11. 0.02 (0) | 21. 36 (35.5) |
| 2. 8.43 (8.428) | 12. 2.9 (2.87) | 22. 3.9 (3.86) |
| 3. 16.67 (16.666) | 13. 8.2 (8.18) | 23. 0.167 (0.1666) |
| 4. 28.17 (28.165) | 14. 0.087 (0.0866) | 24. 1.1 (1.09) |
| 5. 0.72 (3) | 15. 1.3333 (3) | 25. 2.3 (2.28) |
| 6. 41.67 (41.666) | 16. 32.9 (32.85) | 26. 4 (3.7) |
| 7. 0.03 (0.026) | 17. 20.3 (20.25) | 27. 0.72 (3) |
| 8. 0.93 (0.928) | 18. 0.032 (3) | 28. 0.0042 (0.004 15) |
| 9. 1.03 (1.028) | 19. 283.333 (3) | 29. 0.57 (1) |
| 10. 0.71 (4) | 20. 1.7 (1) | 30. 2.5 (2.47) |

EXERCISE 6k (p. 104)

Calculators can be used, the brightest pupils using them only for checking.

- | | | | | |
|-----------|--------------|-----------|----------|-----------|
| 1. 0.144 | 6. 5.76 | 10. 4.2 | 14. 0.16 | 18. 0.12 |
| 2. 1.6 | 7. 0.000 126 | 11. 12.24 | 15. 4 | 19. 0.125 |
| 3. 0.0512 | 8. 0.14 | 12. 84 | 16. 4 | 20. 0.7 |
| 4. 128 | 9. 6.72 | 13. 0.3 | 17. 10 | 21. 12 |
| 5. 2.88 | | | | |

EXERCISE 6l (p. 105)

Calculations should be used, except possibly by the most able.

- | | | | | |
|----------------------------------|--|---|--|--|
| 1. 0.2, $\frac{1}{4}$ | 4. $\frac{3}{11}$, 0.3, $\frac{1}{3}$ | 7. 0.35, $\frac{9}{25}$, $\frac{3}{8}$ | 9. $\frac{3}{7}$, $\frac{5}{11}$, $\frac{6}{13}$ | 11. 0.3, $\frac{5}{12}$ |
| 2. $\frac{2}{5}$, $\frac{4}{9}$ | 5. $\frac{7}{8}$, $\frac{8}{9}$, 0.9 | 8. $\frac{4}{7}$, 0.59, $\frac{3}{5}$ | 10. $\frac{8}{11}$, 0.7 | 12. 0.45, $\frac{9}{19}$, $\frac{1}{2}$ |
| 3. $\frac{4}{9}$, $\frac{1}{2}$ | 6. $\frac{3}{4}$, $\frac{17}{20}$ | | | |

EXERCISE 6m (p. 106)

- | | | | |
|------------------|--------------------|---------|---|
| 1. a) 6.8 b) 680 | 3. a) 3.13 b) 0.08 | 5. 4.48 | 7. 11.82 |
| 2. 0.875 | 4. 20.138 | 6. 1.64 | 8. $6\frac{2}{3}$, ($6\frac{2}{3}=6.666\dots$) |

EXERCISE 6n (p. 106)

- | | | | |
|----------------------|----------|----------|-------------------------|
| 1. $\frac{3}{50}$ | 3. 1.7 | 5. 0.048 | 7. £55.68 |
| 2. a) 0.0624 b) 0.52 | 4. 6.4cm | 6. 0.24 | 8. a) 8 b) 7.8 c) 7.782 |

EXERCISE 6p (p. 107)

- | | | | |
|--------------------|--------------------|-----------|------------------|
| 1. 0.714285 | 3. 16.28 | 5. 7.4437 | 7. $\frac{7}{9}$ |
| 2. 0.064, 0.000 64 | 4. $\frac{31}{50}$ | 6. 2.05 | 8. 25 |

EXERCISE 6q (p. 107)

- | | | | |
|-------------------|----------------------|----------|-------------|
| 1. 0.16 | 3. 0.0036 | 5. 14.63 | 7. 2 |
| 2. 9.186 (9.1857) | 4. $\frac{19}{2000}$ | 6. 59.5p | 8. 0.666... |