

**CHAPTER 4 Fractions: Multiplication and Division**

If pupils have not done multiplication of fractions before, much classroom discussion is advisable, using cake diagrams, rectangles, etc., to get across the meaning that, for example,  $\frac{1}{2} \times \frac{3}{4}$  means  $\frac{1}{2}$  of  $\frac{3}{4}$  and that  $\frac{1}{2} \times \frac{3}{4} = \frac{1 \times 3}{2 \times 4}$ .

**EXERCISE 4b (p. 60)**

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|--------------------|---------------------|---------------------|--------------------|--------------------|
| 1. $\frac{3}{8}$   | 9. $\frac{5}{24}$   | 16. $\frac{2}{3}$   | 23. $\frac{4}{11}$ | 30. $\frac{3}{16}$ |
| 2. $\frac{10}{21}$ | 10. $\frac{14}{27}$ | 17. $\frac{1}{9}$   | 24. $\frac{4}{11}$ | 31. $\frac{3}{20}$ |
| 3. $\frac{2}{15}$  | 11. $\frac{3}{20}$  | 18. $\frac{15}{28}$ | 25. $\frac{2}{9}$  | 32. $\frac{2}{3}$  |
| 4. $\frac{7}{16}$  | 12. $\frac{3}{35}$  | 19. $\frac{3}{4}$   | 26. $\frac{2}{31}$ | 33. 4              |
| 5. $\frac{3}{7}$   | 13. $\frac{1}{6}$   | 20. $\frac{6}{7}$   | 27. $\frac{2}{3}$  | 34. $\frac{1}{18}$ |
| 6. $\frac{4}{63}$  | 14. $\frac{4}{7}$   | 21. $\frac{5}{48}$  | 28. $\frac{1}{5}$  | 35. $\frac{3}{22}$ |
| 7. $\frac{6}{35}$  | 15. $\frac{7}{18}$  | 22. $\frac{11}{10}$ | 29. $\frac{1}{7}$  | 36. $\frac{1}{6}$  |
| 8. $\frac{6}{25}$  |                     |                     |                    |                    |

**EXERCISE 4c (p. 61)**

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|--------------------|---------------------|---------------------|--------------------|--------|
| 1. $\frac{3}{5}$   | 7. $\frac{7}{8}$    | 13. 30              | 19. 20             | 25. 23 |
| 2. 2               | 8. 2                | 14. $16\frac{1}{2}$ | 20. 60             | 26. 9  |
| 3. $\frac{3}{4}$   | 9. $16\frac{1}{3}$  | 15. $7\frac{1}{2}$  | 21. 7              | 27. 14 |
| 4. $11\frac{1}{5}$ | 10. $\frac{17}{21}$ | 16. 9               | 22. 15             | 28. 12 |
| 5. $\frac{1}{2}$   | 11. 14              | 17. 10              | 23. 5              | 29. 3  |
| 6. $\frac{1}{2}$   | 12. 4               | 18. 10              | 24. $6\frac{1}{3}$ | 30. 8  |

**EXERCISE 4d (p. 63)**

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|--------------------|--------------------|-------------------|---------------------|--------|
| 1. 23              | 4. $37\frac{1}{2}$ | 7. 36             | 9. 120              | 11. 14 |
| 2. 30              | 5. 110             | 8. $8\frac{1}{2}$ | 10. $18\frac{1}{3}$ | 12. 44 |
| 3. $12\frac{1}{2}$ | 6. $13\frac{1}{2}$ |                   |                     |        |

**EXERCISE 4e (p. 63)**

- |       |                |                |                |              |
|-------|----------------|----------------|----------------|--------------|
| 1. 6  | 7. 5           | 13. 45 litres  | 19. 15 miles   | 25. 292 days |
| 2. 6  | 8. 8           | 14. 33 miles   | 20. 88 gallons | 26. 9h       |
| 3. 3  | 9. 30          | 15. 21 gallons | 21. 50p        | 27. 1 day    |
| 4. 16 | 10. 15         | 16. 8m         | 22. 8p         | 28. £3       |
| 5. 10 | 11. 12m        | 17. 10 dollars | 23. 30p        | 29. 60p      |
| 6. 6  | 12. 25 dollars | 18. 28 litres  | 24. 12p        | 30. 21h      |

**Division:** if not already done, much discussion is necessary before deducing the “rule”.

**EXERCISE 4f (p. 64)**

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|-------|--------|-------------------|--------------------|--------------------|
| 1. 14 | 7. 21  | 13. 49            | 19. $1\frac{1}{5}$ | 25. $\frac{2}{3}$  |
| 2. 20 | 8. 45  | 14. 99            | 20. $\frac{1}{12}$ | 26. $1\frac{1}{2}$ |
| 3. 21 | 9. 99  | 15. 39            | 21. $1\frac{1}{2}$ | 27. $1\frac{2}{5}$ |
| 4. 15 | 10. 30 | 16. 63            | 22. $\frac{2}{5}$  | 28. $\frac{2}{3}$  |
| 5. 12 | 11. 18 | 17. 38            | 23. 1              | 29. $\frac{3}{8}$  |
| 6. 10 | 12. 16 | 18. $\frac{3}{4}$ | 24. $2\frac{1}{3}$ |                    |

**EXERCISE 4g (p. 66)**

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|--------------------|--------------------|--------------------|--------------------|--------------------|
| 1. $10\frac{1}{2}$ | 5. $2\frac{8}{11}$ | 9. $1\frac{4}{5}$  | 13. 12             | 17. $1\frac{3}{7}$ |
| 2. $\frac{5}{6}$   | 6. $6\frac{2}{3}$  | 10. 4              | 14. 6              | 18. $3\frac{1}{3}$ |
| 3. $5\frac{1}{3}$  | 7. $\frac{9}{10}$  | 11. 6              | 15. $5\frac{3}{5}$ | 19. $1\frac{1}{2}$ |
| 4. 6               | 8. $4\frac{5}{6}$  | 12. $2\frac{2}{3}$ | 16. 6              | 20. 12             |

**EXERCISE 4h (p. 68)**

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|-------------------|-------------------|--------------------|--------------------|--------------------|
| 1. 1              | 4. $\frac{2}{3}$  | 7. $5\frac{1}{10}$ | 9. $1\frac{1}{2}$  | 11. $\frac{9}{20}$ |
| 2. $2\frac{1}{2}$ | 5. $\frac{8}{15}$ | 8. $2\frac{1}{4}$  | 10. $\frac{9}{32}$ | 12. $\frac{4}{5}$  |
| 3. $1\frac{2}{3}$ | 6. $2\frac{2}{3}$ |                    |                    |                    |

**EXERCISE 4i (p. 69)**

Intended as extra practice for the above average.

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|--------------------|---------------------|---------------------|---------------------|-------|
| 1. $\frac{3}{5}$   | 9. $\frac{1}{16}$   | 17. $\frac{5}{21}$  | 25. $\frac{1}{9}$   | 33. T |
| 2. $\frac{7}{12}$  | 10. $\frac{1}{3}$   | 18. $\frac{5}{18}$  | 26. $4\frac{2}{9}$  | 34. T |
| 3. $\frac{1}{5}$   | 11. $\frac{2}{21}$  | 19. $\frac{2}{33}$  | 27. $1\frac{3}{8}$  | 35. F |
| 4. $\frac{3}{14}$  | 12. $\frac{7}{10}$  | 20. $1\frac{2}{25}$ | 28. $2\frac{7}{30}$ | 36. F |
| 5. $\frac{13}{15}$ | 13. $\frac{21}{34}$ | 21. $\frac{1}{21}$  | 29. $\frac{11}{16}$ | 37. T |
| 6. $\frac{5}{24}$  | 14. $1\frac{1}{2}$  | 22. $1\frac{1}{4}$  | 30. $1\frac{8}{9}$  | 38. F |
| 7. $1\frac{5}{8}$  | 15. $\frac{1}{22}$  | 23. $\frac{1}{4}$   | 31. T               | 39. F |
| 8. $\frac{41}{42}$ | 16. $\frac{9}{22}$  | 24. $\frac{1}{3}$   | 32. F               | 40. T |

**EXERCISE 4j (p. 70)**

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|--------------------|---------------------|----------------------|---------------------|--------------------|
| 1. $4\frac{3}{4}$  | 9. 3                | 17. $4\frac{1}{14}$  | 25. $\frac{7}{8}$   | 33. $2\frac{1}{4}$ |
| 2. $1\frac{1}{8}$  | 10. $3\frac{7}{8}$  | 18. $\frac{7}{8}$    | 26. $1\frac{3}{8}$  | 34. 0              |
| 3. $\frac{3}{4}$   | 11. $6\frac{1}{4}$  | 19. $3\frac{13}{16}$ | 27. $3\frac{1}{20}$ | 35. $\frac{1}{5}$  |
| 4. 4               | 12. 2               | 20. $4\frac{1}{2}$   | 28. $1\frac{1}{2}$  | 36. $\frac{3}{8}$  |
| 5. $2\frac{1}{14}$ | 13. $1\frac{7}{10}$ | 21. $1\frac{1}{12}$  | 29. $5\frac{3}{7}$  | 37. $\frac{1}{16}$ |
| 6. $\frac{17}{18}$ | 14. $2\frac{2}{7}$  | 22. $\frac{7}{12}$   | 30. $\frac{1}{2}$   | 38. $4\frac{2}{7}$ |
| 7. 22              | 15. $2\frac{2}{5}$  | 23. $5\frac{3}{8}$   | 31. $3\frac{1}{2}$  | 39. $2\frac{6}{7}$ |

8.  $\frac{13}{15}$

16.  $\frac{17}{20}$

24.  $3\frac{1}{12}$

32. 1

40. 2

**EXERCISE 4k (p. 71)**

1. 30kg

3. 3km

4.  $58\frac{1}{2}$  min

5. 22

6.  $1\frac{1}{2}$

2.  $\frac{7}{20}$  litres

**EXERCISE 4l (p. 72)**

1. a)  $1\frac{2}{3}$  b)  $2\frac{3}{8}$  5.  $\frac{3}{5}, \frac{2}{3}, \frac{7}{10}$

9. 18 min

13. a) T b) T c) F

2. 6

6. a)  $19\frac{1}{3}$  b)  $1\frac{1}{2}$

10.  $3\frac{9}{10}$

14. 63 min

3.  $\frac{5}{6}$

7.  $2\frac{1}{6}$

11. a) 27 b) 40

15.  $124\frac{1}{2}$  g

4.  $1\frac{13}{20}$

8. 6

12. a)  $2\frac{3}{5}$  b)  $3\frac{7}{8}$  c)  $5\frac{2}{5}$

**EXERCISE 4m (p. 73)**

1. a) 15 b)  $11\frac{1}{3}$

5.  $\frac{1}{3}, \frac{2}{5}, \frac{7}{15}$

9. a) 24 b) 21

2. a)  $1\frac{2}{3}$  b)  $4\frac{11}{18}$

6. 2

10. a)  $3\frac{1}{8}$  b)  $5\frac{4}{9}$  c)  $6\frac{1}{6}$

3. a) &lt; b) &lt;

7. a)  $6\frac{1}{4}$  b)  $2\frac{6}{11}$

11.  $12\frac{1}{8}$  km;  $\frac{77}{97}$

4. a)  $1\frac{1}{12}$  b) 9

8. 125s

12. 6

**EXERCISE 4n (p. 74)**

1. a)  $2\frac{25}{36}$  b) 0

5. a)  $6\frac{1}{4}$  b)  $17\frac{11}{12}$

9. a)  $7\frac{1}{3}$  b)  $9\frac{1}{5}$  c)  $10\frac{3}{5}$

2. a)  $\frac{1}{4}$  b)  $\frac{4}{5}$

6.  $\frac{8}{11}$

10. a, b and c

3. 25 days

7.  $1\frac{6}{7}$

11. 18 min

4.  $\frac{17}{20}, \frac{3}{4}, \frac{7}{10}$

8.  $2\frac{2}{5}$

12.  $1\frac{4}{7}$  kg