Practice Book   *UNIT 9   Fractions and Percentages*   Answers

9.1 Revision of Operations with Fractions

1. (a) $\dfrac{5}{7}$
   (b) $\dfrac{5}{4}$ or $1\dfrac{1}{4}$
   (c) $\dfrac{8}{9}$
   (d) $\dfrac{2}{5}$
   (e) $\dfrac{16}{13}$ or $1\dfrac{3}{13}$

   (f) $\dfrac{11}{7}$ or $1\dfrac{4}{7}$
   (g) $\dfrac{2}{7}$
   (h) $\dfrac{1}{3}$
   (i) $\dfrac{5}{13}$

2. (a) $\dfrac{5}{6}$
   (b) $\dfrac{12}{35}$
   (c) $\dfrac{9}{20}$
   (d) $\dfrac{7}{6}$ or $1\dfrac{1}{6}$
   (e) $\dfrac{47}{40}$ or $1\dfrac{7}{40}$

   (f) $\dfrac{31}{20}$ or $1\dfrac{11}{20}$
   (g) $\dfrac{23}{21}$ or $1\dfrac{2}{21}$
   (h) $\dfrac{10}{9}$ or $1\dfrac{1}{9}$
   (i) $\dfrac{7}{8}$

3. (a) 4
   (b) 8
   (c) $5\dfrac{4}{5}$
   (d) $4\dfrac{5}{6}$
   (e) $6\dfrac{2}{5}$
   (f) $9\dfrac{1}{7}$

   (g) $7\dfrac{3}{8}$
   (h) $7\dfrac{13}{21}$
   (i) $6\dfrac{2}{9}$

4. (a) 1
   (b) $1\dfrac{1}{2}$
   (c) $\dfrac{1}{8}$
   (d) $\dfrac{6}{7}$
   (e) $\dfrac{14}{8}$ or $1\dfrac{3}{4}$

   (f) $\dfrac{5}{6}$
   (g) $1\dfrac{5}{9}$
   (h) $\dfrac{41}{14}$ or $2\dfrac{13}{14}$
   (i) $\dfrac{19}{12}$ or $1\dfrac{7}{12}$

5. (a) £5
   (b) 6 kg
   (c) £24
   (d) 72 kg
   (e) 35 kg
   (f) 7.5 m
   (g) £21.60
   (h) 29.4 m

6. (a) $\dfrac{1}{8}$
   (b) $\dfrac{3}{40}$
   (c) $\dfrac{2}{5}$
   (d) $\dfrac{4}{7}$
   (e) $\dfrac{3}{5}$
   (f) $\dfrac{12}{35}$

   (g) $\dfrac{3}{8}$
   (h) $\dfrac{4}{21}$
   (i) $\dfrac{1}{10}$

7. (a) $\dfrac{3}{2}$
   (b) $\dfrac{27}{32}$
   (c) $\dfrac{3}{4}$
   (d) $\dfrac{7}{5}$ or $1\dfrac{2}{5}$
   (e) $\dfrac{5}{4}$ or $1\dfrac{1}{4}$

   (f) $\dfrac{40}{63}$
   (g) $\dfrac{9}{7}$ or $1\dfrac{2}{7}$
   (h) $\dfrac{16}{21}$
   (i) $\dfrac{5}{4}$

8. (a) $\dfrac{9}{8}$ or $1\dfrac{1}{8}$
   (b) 1
   (c) $\dfrac{5}{6}$
   (d) $\dfrac{3}{8}$
   (e) $\dfrac{15}{8}$ or $1\dfrac{7}{8}$
   (f) $\dfrac{4}{3}$ or $1\dfrac{1}{3}$

9. (a) 2
   (b) 7
   (c) $\dfrac{27}{8}$ or $3\dfrac{3}{8}$

   (d) 14
   (e) $\dfrac{45}{8}$ or $5\dfrac{5}{8}$
   (f) $\dfrac{39}{8}$ or $4\dfrac{7}{8}$

9.1   Answers

10. (a) $\dfrac{9}{8}$ or $1\dfrac{1}{8}$ (b) $\dfrac{11}{2}$ or $5\dfrac{1}{2}$ (c) $\dfrac{16}{9}$ or $1\dfrac{7}{9}$

11. (a) $\dfrac{5}{2}$ or $2\dfrac{1}{2}$ (b) $\dfrac{14}{5}$ or $2\dfrac{4}{5}$ (c) $\dfrac{7}{3}$ or $2\dfrac{1}{3}$

12. (a) $\dfrac{65}{28}$ or $2\dfrac{9}{28}$ (b) $\dfrac{15}{14}$ or $1\dfrac{1}{14}$ (c) $\dfrac{25}{12}$ or $2\dfrac{1}{12}$ (d) $\dfrac{7}{2}$ or $3\dfrac{1}{2}$

   (e) 4   (f) $\dfrac{25}{24}$ or $1\dfrac{1}{24}$

9.2 Fractions in Context

1. (a) $\dfrac{19}{28}$ (b) $\dfrac{8}{21}$ (c) $6\dfrac{3}{4}$ (d) 3   (e) $\dfrac{21}{32}$ (f) $\dfrac{3}{10}$

   (g) $10\dfrac{1}{2}$ (h) $1\dfrac{7}{8}$ (i) $6\dfrac{8}{21}$ (j) $\dfrac{9}{10}$ (k) $8\dfrac{1}{3}$ (l) $2\dfrac{1}{10}$

2. (a) Converts to fraction in simplest form.

   (b) Converts to mixed number in simplest form.

   (c) $\dfrac{3}{7}$ same; $\dfrac{9}{2} \rightarrow 4\dfrac{1}{2}$; $\dfrac{4}{6} \rightarrow \dfrac{2}{3}$;

   $\dfrac{6}{4} \rightarrow 1\dfrac{1}{2}$; $\dfrac{10}{3} \rightarrow 3\dfrac{1}{3}$; $\dfrac{3}{10}$ same

3. (a) Area $= \dfrac{1}{3}$ m^2, perimeter $= 2\dfrac{1}{3}$ m   (b) Area $= 3\dfrac{1}{4}$ m^2, perimeter $= 7\dfrac{7}{10}$ m

4. 320 pupils

5. (a) 5 discs   (b) 4 discs   (c) 100 discs

6. (a) 8 cakes   (b) 16 cakes   (c) 1 cake $(1\dfrac{7}{9})$ (d) 2 cakes $(2\dfrac{2}{3})$

   (e) 4 cakes   (f) 3 cakes $(3\dfrac{5}{7})$

7. $x = \dfrac{52}{15}$ or $3\dfrac{7}{15}$

8. $\dfrac{1}{2}$ cm   (b) $1\dfrac{1}{2}$ cm   (c) $\dfrac{7}{8}$ cm   (d) $1\dfrac{3}{4}$ cm

   360 sheets in pile of paper $4\dfrac{1}{2}$ cm high

9.2   Answers

9. 280 drinks

10. Volume $= \dfrac{21}{5} \times \dfrac{27}{8} \times \dfrac{11}{4} = 38\dfrac{157}{160}$ cm^3

9.3 Conversion of Fractions and Percentages

1. (a) $\dfrac{1}{2}$ (b) $\dfrac{3}{4}$ (c) $\dfrac{2}{5}$ (d) $\dfrac{1}{4}$ (e) $\dfrac{1}{5}$ (f) $\dfrac{1}{10}$

   (g) $\dfrac{2}{25}$ (h) $\dfrac{29}{50}$ (i) $\dfrac{9}{25}$ (j) $\dfrac{16}{25}$ (k) $\dfrac{19}{25}$ (l) $\dfrac{3}{25}$

2. (a) 70%   (b) 50%   (c) 25%   (d) 75%   (e) 35%   (f) 24%
   (g) 95%   (h) 68%   (i) 60%   (j) 20%   (k) 55%   (l) 14%

3. (a) $\dfrac{1}{8}$ (b) $\dfrac{2}{3}$ (c) $\dfrac{1}{3}$ (d) $\dfrac{29}{200}$ (e) $\dfrac{37}{200}$ (f) $\dfrac{17}{400}$

4. (a) $12\dfrac{1}{2}\%$ (b) $16\dfrac{2}{3}\%$ (c) $37\dfrac{1}{2}\%$

   (d) $23\dfrac{1}{2}\%$ (e) $30\dfrac{1}{2}\%$ (f) $66\dfrac{2}{3}\%$

5. 32%

6. 40%

7. $62\dfrac{1}{2}\%$

8. (a) 25%   (b) 75%

9. (a) $33\dfrac{1}{3}\%$ (b) $66\dfrac{2}{3}\%$

10. (a) Science 75%;   Maths 75%;   English 76%;   French 70%

    (b) Average 74%

Answers

9.4 Finding Percentages

1. (a) £11   (b) 7 m   (c) £15   (d) 24 m   (e) £24   (f) 45 kg

    (g) £22.50   (h) $1\frac{1}{2}$ kg   (i) 9.6 kg   (j) £6.40   (k) 5.6 m   (l) £7

2. (a) £35   (b) £52.50   (c) £7   (d) £5.25   (e) £4.90   (f) £6.65

3. (a) £4.375   (b) To the nearest pence   £4.38

4. (a) £2.63   (b) £13.13   (c) £1.23 (all to the nearest pence)

5. £18

6. (a) £157.50   (b) £1057.50

7. 48

8. (a) £62   (b) £124

9. 238 pupils

10. 42 marks

9.5 Increasing and Decreasing Quantities by a Percentage

1. (a) £44   (b) £149.60   (c) £288.20

2. (a) £40   (b) £73.60   (c) £272

3. (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

4. £480

5. Box of chocolates   £3.12   £3.12
    Flour   £0.78   78p
    Sweets   £0.52   52p
    Beans   £0.21   21p
    Drink   £0.47   47p

6. £67.50

7. £192

9.5   Answers

8. (a) £470   (b) £25.85   (c) 76.38

9. 126 000 people

10. (a) End 1st year $800 \times 1.05 = £840$

     End 2nd year $840 \times 1.05 = £882$

   (b) £1021.03 (nearest pence)

11. (a) 1.1   (b) $1.1 \times 1.1 = 1.21$ (c) 1.1^n (d) 8 years

9.6 Finding the Percentage Increase and Decrease

1. 10%

2. 20%

3. 3%

4. 25% (note that this is profit of 20p on selling price of 80p)

5. 15%

6. 6% (nearest %)

7. 18.75% = 18.8% (1 d.p.)

8. 27.3% (3 s.f.)

9. 1.33% (3 s.f.)

10. (a) 5%   (b) 7.00% (2 d.p.)   (c) 12.35% (2 d.p.)

9.7 Reverse Percentage Calculations

1. Jeans   £45
    Coat   £70
    Shirt   £17.50

2. £12 000

3. 43p

9.7

Answers

4. 450 gm

5. £25

6. 22 cm

7. £21 000

8. £165.71 (nearest pence)

9. 14 cm

10. £1885.71 (nearest pence)