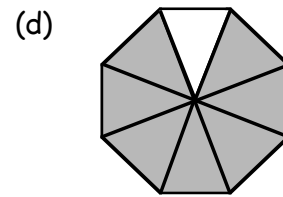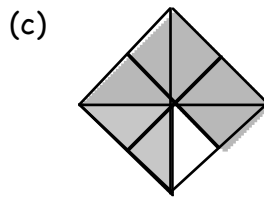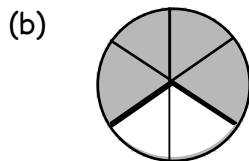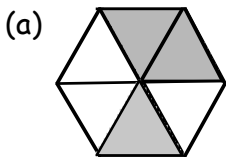# Chapter 6

Fractions & Percentages

Exercise 1

1. Write the mathematical name for :-
   (a) the top part of a fraction
   (b) the bottom part of a fraction.

2. For each of the following, say what fraction has been shaded :-

   (a)   (b)   (c)   (d)

3. Draw four rectangles each 8 boxes by 2 boxes.

   Shade or colour :-

   (a) $\dfrac{1}{4}$ (b) $\dfrac{3}{4}$ (c) $\dfrac{5}{8}$ (d) $\dfrac{1}{16}$ of the shape.

4. Draw four squares each 6 boxes by 6 boxes.

   Shade or colour :-

   (a) $\dfrac{1}{4}$ (b) $\dfrac{5}{6}$ (c) $\dfrac{5}{12}$ (d) $\dfrac{2}{3}$ of the shape.

5. Simplify each fraction :-

   (a) $\dfrac{10}{20}$ (b) $\dfrac{5}{25}$ (c) $\dfrac{3}{12}$ (d) $\dfrac{4}{24}$

   (e) $\dfrac{8}{30}$ (f) $\dfrac{6}{45}$ (g) $\dfrac{16}{48}$ (h) $\dfrac{250}{600}$

   (e) $\dfrac{7}{42}$ (f) $\dfrac{8}{36}$ (g) $\dfrac{12}{54}$ (h) $\dfrac{17}{51}$

6. Simplify :-

   (a) $\dfrac{17}{102}$ (b) $\dfrac{27}{243}$ (c) $\dfrac{11}{242}$ (d) $\dfrac{23}{2323}$

Exercise 2

1. Find :-

    (a) $\frac{1}{2}$ of 46   (b) $\frac{1}{3}$ of 39   (c) $\frac{1}{4}$ of 64   (d) $\frac{1}{7}$ of 63

    (e) $\frac{1}{12}$ of 84   (f) $\frac{1}{15}$ of 165   (g) $\frac{1}{20}$ of 880   (h) $\frac{1}{75}$ of 975

2. Find :-

    (a) $\frac{3}{4}$ of 36   (b) $\frac{2}{3}$ of 24   (c) $\frac{3}{7}$ of 21   (d) $\frac{4}{5}$ of 35

    (e) $\frac{9}{10}$ of 210   (f) $\frac{5}{12}$ of 144   (g) $\frac{7}{8}$ of 648   (h) $\frac{11}{13}$ of 143

3. There are 240 first year pupils at Gracetown High School. $\frac{3}{8}$ of them are boys.

    (a) How many boys are there ?   (b)   How many girls are there ?

4. Two thirds of the days in June were sunny days.
    How many days were sunny ?

5. A computer predicted that in February 2007
    two sevenths of the month would have snow falling.
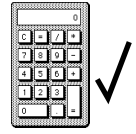   How many day would not have snow falling ?

Exercise 3

1. Write each of the following as a fraction and as a decimal :-

    (a) 41%   (b) 93%   (c) 7%   (d)   23%

    (e) 99%   (f) 11·5%   (g) 1·5%   (h)   8·25%

2. Write these percentages as fractions and simplify :-

    (a) 20%   (b) 45%   (c) 15%   (d)   75%

    (e) 5%   (f) 35%   (g) $66\frac{2}{3}$%   (h)   12·5%

3. Use a calculator where necessary and change each fraction to a percentage :-

(a) $\dfrac{8}{25}$ (b) $\dfrac{12}{40}$ (c) $\dfrac{5}{8}$ (d) $\dfrac{11}{80}$ ✓

4. Andrew sat a Maths test which comprised of twenty questions each worth two marks.

Andrew scored 32 marks.   Write his test score as a percentage.

5. Patel scored $\dfrac{32}{50}$ for French, $\dfrac{45}{72}$ for Music, $\dfrac{18}{25}$ for English and $\dfrac{22}{30}$ for Maths.

List Patel's subjects in order from best to worst.

Exercise 4   ✓

1. Calculate :-

(a) 20% of £60   (b) 40% of 250 kg   (c) 60% of £150

(d) 15% of 120 g   (e) 8% of £66   (f) 38% of 500 cm

(g) 12% of £80   (h) $12\frac{1}{2}$ % of 240 €   (i) $\frac{1}{2}$ % of £8

2. Eighty percent of the 560 videos in a shop are rated 15.

How many videos are rated 15 ?

3. On holiday, Calvin spent 75% of his £450 spending money.

How much did Calvin spend ?

4. Margaret took £350 on holiday and returned with 15% of her money.

How much money did Margaret spend on holiday ?

5. Of the 380 goals scored in a season,
15% were scored by penalties and
70% were scored by the home team.

(a) How many penalties were scored ?

(b) How many were scored by the away team ?

6. An advert makes 2% of an hours television.

How long is the advert (to the nearest second) ?

Exercise 5

1. Write down the simplest fraction for each of the following percentages :-

    (a) 50%   (b) 20%   (c) 100%   (d)   25%

    (e) $33\frac{1}{3}$%   (f) 5%   (g) 10%   (h)   1%

2. Find without a calculator :-

    (a) 25% of £840   (b) $33\frac{1}{3}$% of 96 metres   (c) 20% of 80 €

    (d) 5% of 350 km   (e) 1% of £20   (f) 50% of 121 kg

    (g) $33\frac{1}{3}$% of 135 mm   (h) 10% of £5   (i) 5% of 380 €

3. A 350 gramme microwave pizza has only 5% fat.
    How many grammes of fat does the meal have ?

4. Find :-

    (a) 1% of £800   (b) 2% of £800   (c) 7% of £800

Exercise 6

1. Write down the simplest fraction for each of the following percentages :-

    (a) 75%   (b) 30%   (c) 80%   (d) 70%

    (e) $33\frac{1}{3}$%   (f) $66\frac{2}{3}$%   (g) 40%   (h) 30%

2. Find without a calculator :-

    (a) 50% of £9   (b) $33\frac{1}{3}$% of 360 metres   (c) 80% of 90 €

    (d) 25% of 300p   (e) 60% of 240 p   (f) $66\frac{2}{3}$% of 121 kg

    (g) 70% of 520 cm   (h) 75% of 9600 kg   (i) 75% of £440

    (j) 30% of 3100 km   (k) 75% of £5   (l) $66\frac{2}{3}$% of 1·2 kg
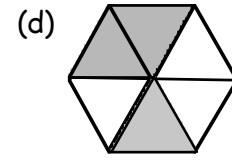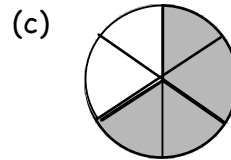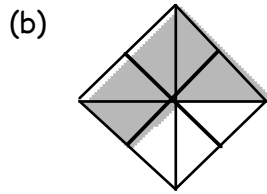
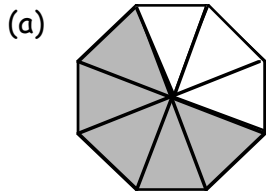3. Explain how you might (mentally) calculate 15% of £80.

4. Explain how you might (mentally) calculate $17\frac{1}{2}$% of £80.

5. Value added tax (VAT) is calculated at $17\frac{1}{2}$%.
    Find the VAT on a wrist watch priced at £240.

Revision Exercise

1. For each shape, say what fraction has been shaded :-

   (a)   (b)   (c)   (d)

2. Simplify each of the following fractions :-

   (a) $\dfrac{7}{14}$ (b) $\dfrac{3}{12}$ (c) $\dfrac{14}{42}$ (d) $\dfrac{11}{88}$

   (e) $\dfrac{12}{78}$ (f) $\dfrac{6}{84}$ (g) $\dfrac{25}{625}$ (h) $\dfrac{27}{126}$

3. Find :-

   (a) $\dfrac{1}{3}$ of 66   (b) $\dfrac{3}{4}$ of 48   (c) $\dfrac{8}{9}$ of 27   (d) $\dfrac{5}{7}$ of 616

4. Write these as fractions in their simplest form :-

   (a) 50%   (b) 25%   (c) 64%   (d) 75%

   (e) 20%   (f) $66\frac{2}{3}$%   (g) $33\frac{1}{3}$%   (h) 12·5%

5. Change these fractions into percentages :-

   (a) $\dfrac{7}{10}$ (b) $\dfrac{2}{5}$ (c) $\dfrac{1}{3}$ (d) $\dfrac{17}{20}$

   (e) $\dfrac{24}{40}$ (f) $\dfrac{20}{30}$ (g) $\dfrac{225}{1000}$ (h) $\dfrac{3}{8}$

6. Calculate :-

   (a) 20% of £75   (b) 65% of $840   (c) $12\frac{1}{2}$% of 808 kg

7. Kris had £120, ($\dfrac{3}{5}$ of his original holiday money). How much did Kris start with ?