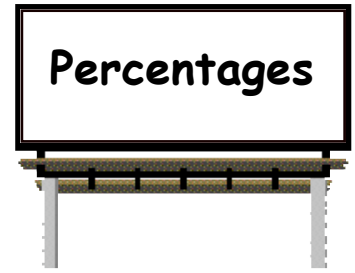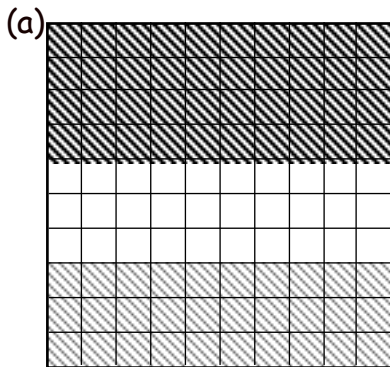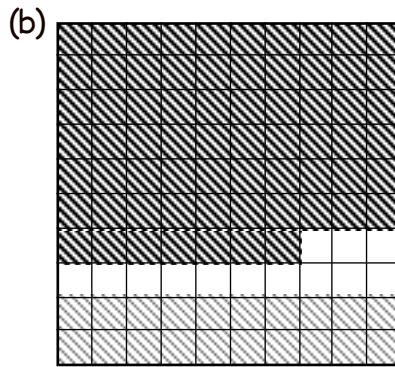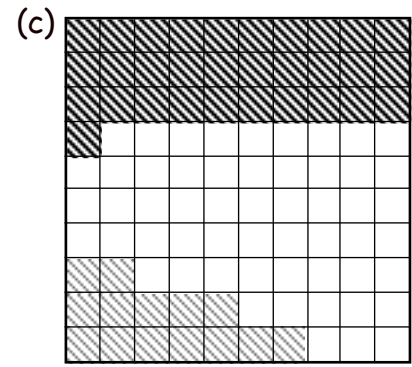**Chapter 13**

Percentages

Exercise 1

1. Each of these squares has been divided into 100 "bits".
   Write down what each shaded region is, as a percentage of the whole square :-

   (a)

   (b)

   (c)

   Dark shading : 40%   **Dark shading : ...%**   **Dark shading :**
   Light shading : ...%   **Light shading : ...%**   **Light shading :**
   White   : ....%   White   : ....%   White   :

   Remember: | **47%** means $\frac{47}{100}$ = 47 ÷ 100 = **0·47** | | **3%** means $\frac{3}{100}$ = 3 ÷ 100 = **0·03** |

2. Write each of the following as a **fraction** :-

   (a) 41%   (b) 67%   (c) 89%   (d) 99%   (e) 11%   (f) 21%

   (g) 2%   (h) 7%   (i) 9%   (j) 51%   (k) 1%   (l) 100%

3. Write each of the following as a **decimal** :-

   (a) 43%   (b) 65%   (c) 93%   (d) 12%   (e) 49%   (f) 99%

   (g) 31%   (h) 9%   (i) 4%   (j) 20%   (k) 1%   (l) 100%
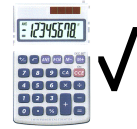
4. Write each of the following as a **fraction** and as a **decimal** :-

   (a) 23%   (b) 77%   (c) 13%   (d) 40%   (e) 98%   (f) 15%

   (g) 6%   (h) 30%   (i) 17%   (j) 2%   (k) 8%   (l) 81%

5. Write each **fraction** or **decimal** as a **percentage** :

   (a) $\frac{23}{100}$ (b) $\frac{83}{100}$ (c) $\frac{10}{100}$ (d) 0·76   (e) 0·61   (f) 0·06

   (g) 0·26   (h) $\frac{90}{100}$ (i) 0·01   (j) $\frac{50}{100}$ (k) 0·5   (l) $\frac{10}{200}$

Exercise 2

1. Copy and complete each of the following :-

   (a) $\frac{9}{25}$ = 9 ÷ 25 = 0·.... = ...%   (b) $\frac{18}{75}$ = 18 ÷ ... = 0· .... = ...%

2. Change each of the **fractions** shown to a **decimal** then to a **percentage** :-

   (a) $\frac{3}{20}$ (b) $\frac{11}{25}$ (c) $\frac{16}{40}$ (d) $\frac{25}{50}$ (e) $\frac{1}{50}$ (f) $\frac{30}{30}$

3. **Carefully,** change each of these **fractions** to **percentages** :-
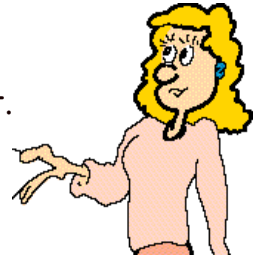
   Remember : 0·1 = 10%

   (a) $\frac{15}{25}$ (b) $\frac{24}{40}$ (c) $\frac{3}{10}$ (d) $\frac{24}{60}$ (e) $\frac{9}{15}$ (f) $\frac{30}{600}$

4. Kirsty scored $\frac{48}{60}$ in a Maths test.

   Change her score to a percentage.

5. Hannah scored $\frac{45}{60}$ in her English test and $\frac{19}{25}$ in her French test.

   In which subject did Hannah perform better ?
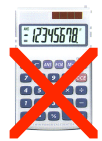   (Explain your answer).

Exercise 3   Remember :–

   50% = $\frac{50}{100}$ = $\frac{1}{2}$ 25% = $\frac{25}{100}$ = $\frac{1}{4}$ 10% = $\frac{10}{100}$ = $\frac{1}{10}$

1. Calculate each of the following :-

   (a) 50% of £30   (b) 25% of 24 kg   (c) 10% of 60 m

   (d) 25% of € 16   (e) 10% of 200 ml   (f) 50% of 300 km

   (g) 10% of £5   (h) 50% of 1 cm   (i) 25% of £2

2. (a) Harriet had £70. She spent 50% of her money on a new dress.

      How much did Harriet spend on her dress ?

   (b) Ben weighed 60 kilograms. He dieted and lost 10% of his weight.

      How many kilograms did he lose ?

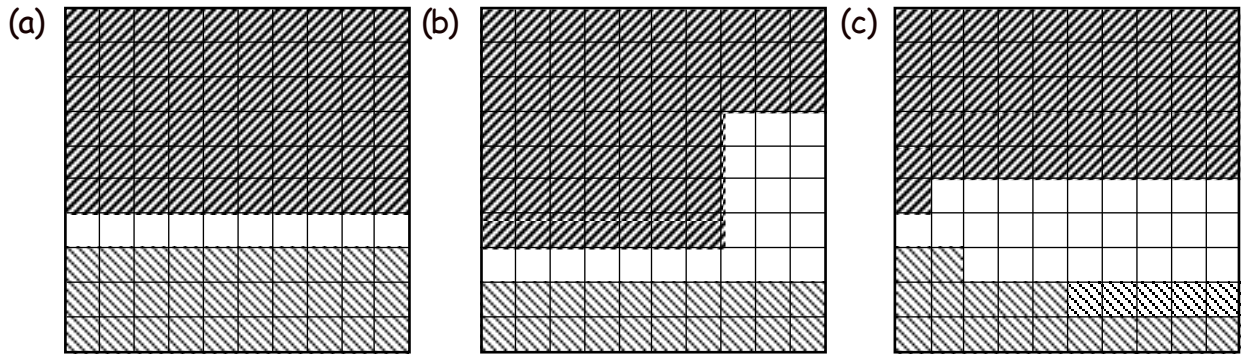3. A shop is giving 25% off a watch which usually costs £120.

   How much would it now cost for the watch ?

Revision Exercise

1. Write down what each shaded part is as a percentage of the whole square :-

    (a)   (b)   (c)

2. Write each of the following as a fraction :-

    (a) 19%   (b) 81%   (c) 50%   (d) 22%   (e) 8%   (f) 2%

3. Write each of the following as a decimal :-

    (a) 21%   (b) 89%   (c) 99%   (d) 60%   (e) 4%   (f) 1%

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

    (a) 91%   (b) 27%   (c) 50%   (d) 25%   (e) 9%   (f) 7%

5. Write each fraction or decimal as a percentage :-

    (a) $\frac{73}{100}$ (b) 0·87   (c) $\frac{42}{100}$ (d) 0·03   (e) $\frac{5}{100}$ (f) 0·4

6. Find :-

    (a) 50% of 64 kg   (b) 10% of 70 yen   (c) 25% of 32 p

7. (a) Zak drank 50% of his 200 millilitre bottle of coke.

    How many millilitres did Zak drink ?

    (b)   Colin had 60 marbles in his collection.
                 He lost 10% of his collection in one game !

                 How many marbles did Colin lose ?

    (c) Mr Schmidt had £50 in his bank.
        He withdrew 25% of her money.

        How much money did he withdraw ?