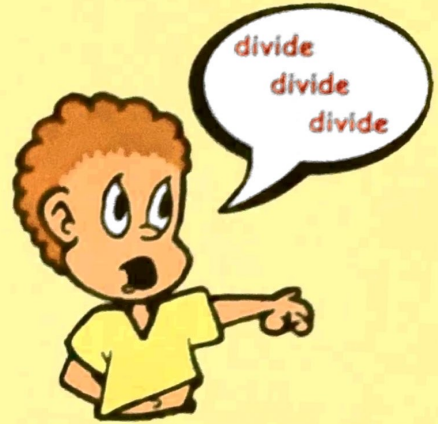**Fraction of a Quantity**

Be able to find a basic fraction of a quantity

To find a fraction (like a $\frac{1}{2}$) of something - you **divide**.

→ $\frac{1}{2}$ of 12p means "12p **divided** by 2" = 6p

→ $\frac{1}{3}$ of 21p means "21p **divided** by 3" = 7p

→ $\frac{1}{8}$ of 40p means "40p **divided** by 8" = 5p

divide
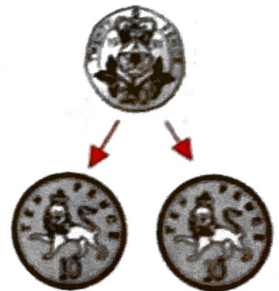*divide*
divide

Exercise 1

1. **Copy** and complete :-

   "$\frac{1}{2}$ of 20p means "20p **divided** by 2" = ... p".

2. **Copy** and complete :-

   "$\frac{1}{4}$ of 36 cm means "36 cm **divided** by ..." = ... cm"

3. Find :-

   a $\frac{1}{2}$ of 60p

   b $\frac{1}{3}$ of 18 metres

   c $\frac{1}{5}$ of 35 grams

   d $\frac{1}{10}$ of £80

   e $\frac{1}{4}$ of 32 litres

   f $\frac{1}{6}$ of £66

   g $\frac{1}{8}$ of 48 cm

   h $\frac{1}{7}$ of 63p

   i $\frac{1}{3}$ of 93p.

4. 27 children are in a classroom. $\frac{1}{3}$ of them are girls.

    a How many girls are in the classroom ?

    b How many boys are there ?

5. It is 36 miles from my home town to Glasgow by train.

    The train broke down when it reached $\frac{1}{4}$ of the way.

    a   How far had I travelled ?

    b   How far was I then from Glasgow ?

6. Lucy got 30 birthday cards on her birthday.

   $\frac{1}{5}$ of them had money in them.
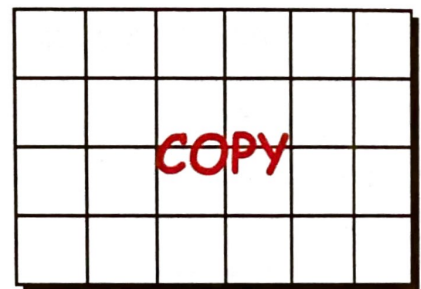
   How many cards had money in them ?

7. Most cats sleep for about $\frac{1}{3}$ of each day.

    How many hours is this ?

8. Draw this rectangle (24 squares) on squared paper.

    a What is $\frac{1}{6}$ of 24 ?

    b **Colour** $\frac{1}{6}$ of the rectangle red.

    c **Colour** $\frac{1}{8}$ of it blue and $\frac{1}{4}$ of it yellow.

    COPY

    d How many of the 24 squares are **not** coloured at all ?

9. Draw the same rectangle again.

   Colour :- • **one half red** • **one quarter blue** • **one eighth green.**

   How many squares are **not** coloured ?

10. a How many days are there in June ?

b It rained on $\frac{1}{6}$ of these days.

How many days was this ?

c I was on holiday for $\frac{1}{3}$ of June.

For how long was I on holiday ?

d Alice went on holiday for half of July and August.

How many days was Alice on holiday ?

e Billy was in bed ill all of last Friday.

What fraction of the week was Billy in bed ill ?

f What fraction of an hour is one minute ?

g What fraction of a day is one hour ?

11. I had some money in my pocket, I spent $\frac{1}{6}$ of it on sweets.

The sweets cost 9 pence.

a How much money must I have had to begin with ?

b How much money did I have left ?

12. Bob's dad went on a tour of duty with the army in March, April and May.

What fraction of the year was his dad on his tour of duty ?

13. a Draw the rectangle shown.

b Colour one half red, one quarter blue and one eighth orange.

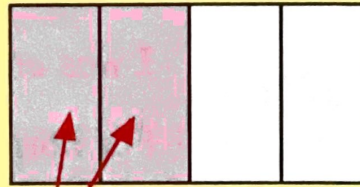c What fraction of the rectangle is not coloured ?

COPY
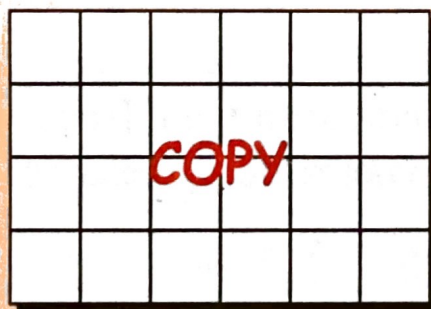
Equivalent Fractions

This rectangle has been divided up in **TWO** different ways :-
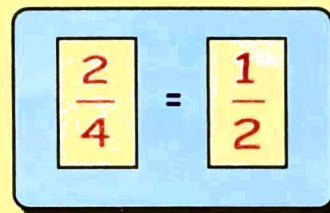
1 out of the **2** bits is shaded **pink**   = $\dfrac{1}{2}$

2 out of the **4** bits are shaded **pink**   = $\dfrac{2}{4}$

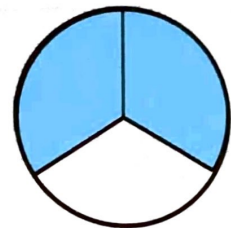Can you see from the diagrams that the two fractions $\dfrac{1}{2}$ and $\dfrac{2}{4}$ are **the SAME** ?

$$\dfrac{2}{4} = \dfrac{1}{2}$$

These are called **equivalent** fractions.

Exercise 2

1. This circle has been divided into 3 equal parts.

   a What fraction of the circle is coloured **blue** ?
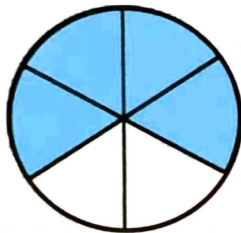
   b   The same circle has been divided into 6 parts this time.

   What fraction this time is coloured **blue** ?

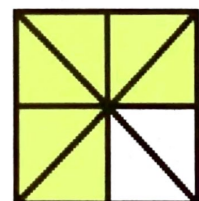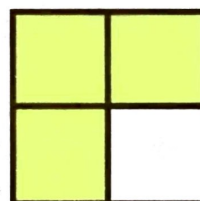   Can you see that the same amount has been coloured **blue** both times ?

   c **Copy** this sentence and finish it :-

   "The 2 diagrams show that the fractions $\dfrac{2}{3} = \dfrac{...}{6}$ are **equivalent**".
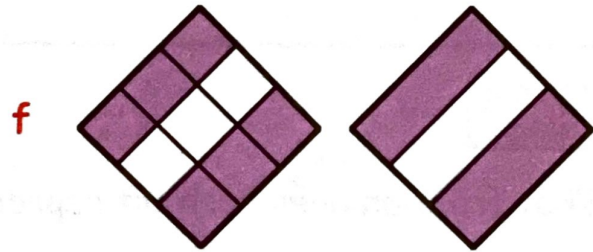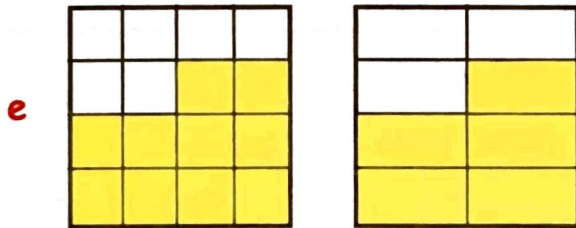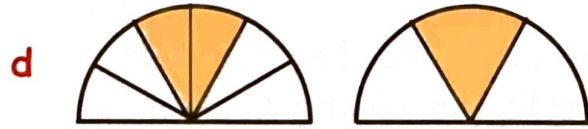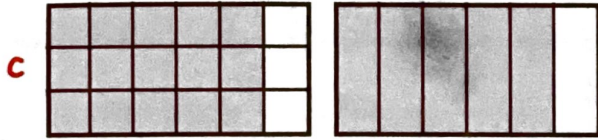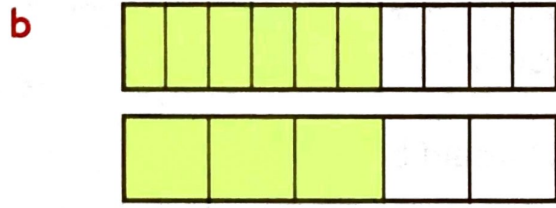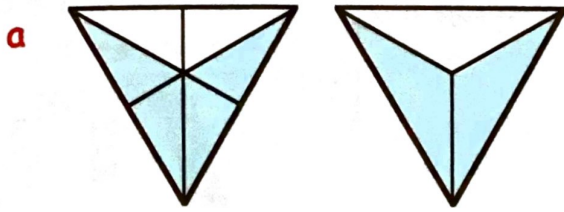
2. Use the two drawings opposite to write down the 2 fractions that are shown to be **equivalent** to each other.

   i.e. $\dfrac{3}{4}$ = ...

3. Use each pair of drawings below to write down the 2 fractions that are shown to be **equivalent** to each other.

a

b

c

d

e

f

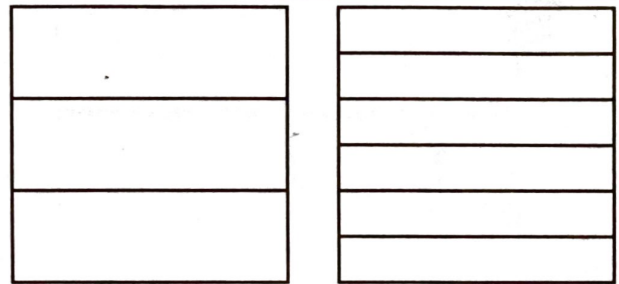**Worksheet 16·2**

4. **Draw** or **trace** both of these squares.

   a   In the first one, colour in 2 boxes.

   b   What **fraction** have you shaded ?

   c   Colour in the correct number of
       boxes in your 2nd square so that both look the same.

   d   Use your drawings to **complete** :- $\dfrac{...}{3} = \dfrac{?}{6}$.
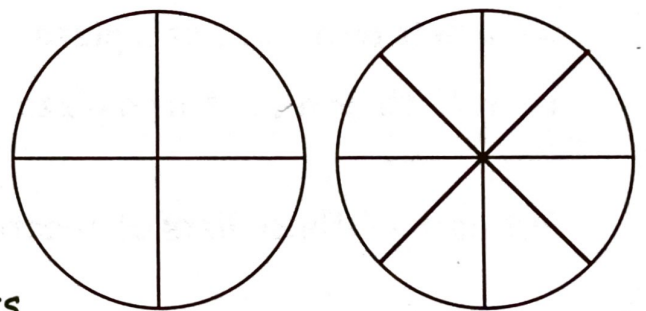
5. **Draw** or **trace** both of these circles.

   a   In the first one, colour in **3 parts**.

   b   What **fraction** have you shaded ?

   c   Shade in the correct number of parts
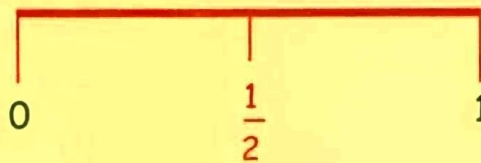   in your 2nd circle so that both represent equivalent fractions.

   d   Use your drawings to **complete** :- $\dfrac{?}{4} = \dfrac{6}{?}$.

Fractions on a Number Line

This number line has been split equally into **2** bits.

Each bit would be $\frac{1}{2}$.

0        $\frac{1}{2}$ 1

This number line has been split equally into **10** bits.

Each bit would be $\frac{1}{10}$.

0   $\frac{1}{10}$ 1

Exercise 3

1. What fraction does each bit represent on each of these number lines :-

a   0   1

b   0   1

c   0   1

d   0   1

e   0   1

f   0   1

2. If you were **very** hungry, would you prefer :-

a   a **half** or a **third** of a pizza

b   a **quarter** or a **third** of a pizza

c   a **fifth** or a **sixth** of a pizza

d   an **eighth** or a **ninth** of a pizza ?

3. Put each of these lists of fractions in order (*largest* first) :-

a $\frac{1}{5}$, $\frac{1}{2}$, $\frac{1}{9}$

b $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{10}$, $\frac{1}{7}$, $\frac{1}{100}$

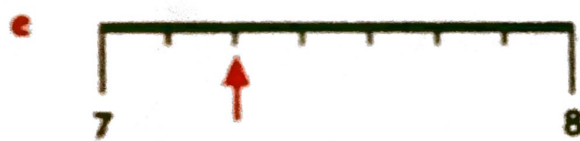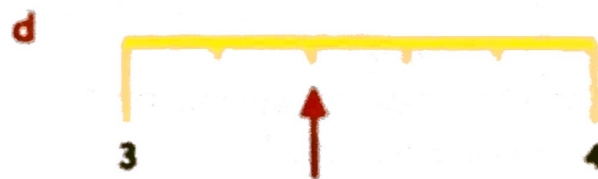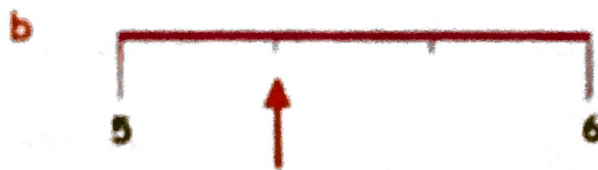c $\frac{1}{3}$, $\frac{1}{13}$, $\frac{1}{6}$, $\frac{1}{5}$, $\frac{1}{11}$

d   a tenth, a third, an eighth, a fifth.

This number line is split into quarters.

The arrow is pointing to 3 and a three quarters. ($3\frac{3}{4}$).

3 ↑ 4

4. What number is each arrow pointing to :-

a
1 ↑ 2

b
5 ↑ 6

c
6 ↑ 7

d
3 ↑ 4

e
7 ↑ 8

f
9 ↑ 10

5. Draw number line diagrams to show each of the following fractions :-

a $6\frac{1}{2}$ b $2\frac{2}{3}$ c $2\frac{1}{5}$ d $3\frac{1}{6}$

e $5\frac{3}{4}$ f $1\frac{3}{5}$ g $3\frac{5}{6}$ h $4\frac{2}{5}$.

6. Make a fraction line along the classroom wall or corridor.
   (You could make a very big fraction line in the playground with chalk.)
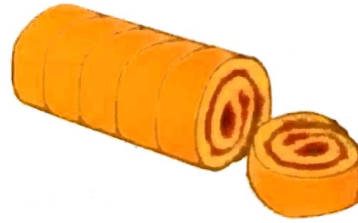
7. a Investigate where fractions are used in everyday life.
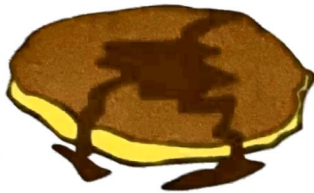
   b Make a poster to show your findings.

1. What **fraction** of this jam roll has been cut off ?

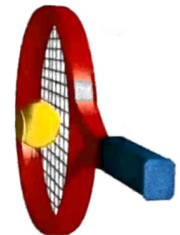2. Draw a **circle** to show this large pancake.

   Show how to cut it up so that Brenda, Alex and Tara get an **equal** share of the pancake.

3. What fraction is represented on this number line ?
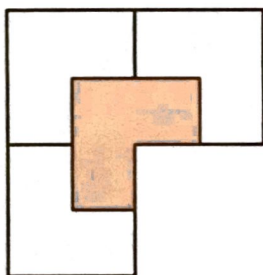
   0   1

4. The cost of hiring a tennis court is to be shared by ten players.
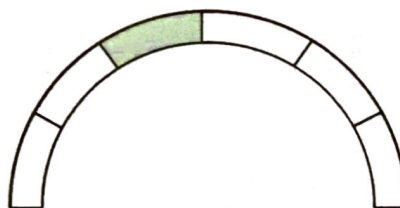
   What **fraction** of the cost has each person to pay ?

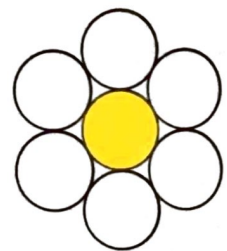5. What **fraction** of each shape has been coloured here ?
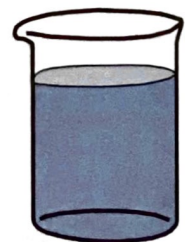
   a   b   c

6. This jar was full of water. Terry drank some of it.

   Estimate what **fraction** of the water Terry drank.

7. What is :-

   a $\frac{1}{2}$ of 60p   b $\frac{1}{5}$ of 30 cards   c $\frac{1}{9}$ of £450 ?

8. Teodor had a collection of 240 comics.

He sold $\frac{1}{3}$ of them to his friend Marek.

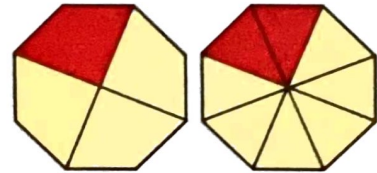How many comics did he sell to Marek ?

9. To raise funds for charity, Danny took 200 shots at a basketball net.

He scored with $\frac{1}{4}$ of his shots.

a With how many shots did Danny score ?
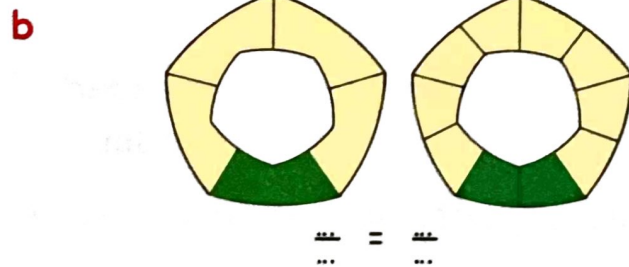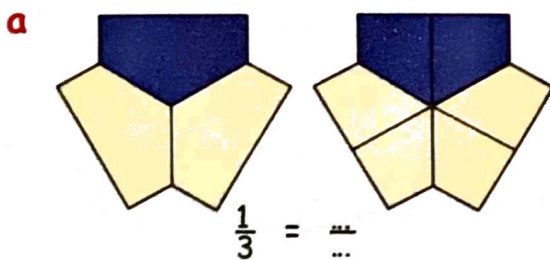
b How many did he fail to score with ?

10. This diagram shows 2 **equivalent** fractions.

Copy and **complete** - $\frac{1}{4}$ is the same as $\frac{2}{...}$.

11. Each diagram below shows 2 fractions that are **equivalent**.

Write down what the fractions are.

a

$$\frac{1}{3} = \frac{...}{...}$$

b

$$\frac{...}{...} = \frac{...}{...}$$

12. This chocolate cake was moulded into **12** sections.

Sara ate $\frac{1}{3}$ of the cake at her party.

How many **sections** must Sara have eaten ?

13. Henry and some of his friends were paid £35 for washing cars.

They shared the money equally.

Henry's share was £5.

How many friends must have helped him wash the cars ?