UNIT 10 *Arithmetic: Fractions*   Activities

Activities

ACTIVITY 10.1   *Introducing Fractions*

This is a whole class activity

Ask 8 pupils to come to the front of the class.

They are to *stand* if the answer to the question is 'yes' and *sit down* if the answer is 'no'.

The class have to state, for each question, what fraction of the children at the front are standing.

1.   Are you a girl?

2.   Are you age 11?

3.   Do you have a brother?

4.   Do you have more than one brother or sister?

5.   Do you support Manchester United?

6.   Do you play a musical instrument?

7.   Do you have a pet animal?

8.   Do you like eating peanuts?

9.   Did you watch *Neighbours* yesterday?

10. Do you like Maths?

The activity can be repeated with different size groups or even the whole class!

ACTIVITY 10.2   *Making Fractions*

This activity can be carried out as a competition with two groups of 3 pupils at the front of the class, or as a whole class activity.

One pupil is given a horizontal bar made out of card (which can be used as a minus sign or a fraction line); the other two pupils are each given one piece of stiff card, hardboard or similar, with a single digit on it. The numbers must be large enough for the whole class to see them.

Start with the two numbers 6 and 9, written so that they can be used either way up to create '6 and 6' or '9 and 9' as well as '6 and 9'.

$$\boxed{}\ \ \boxed{6}\ \ \boxed{9}$$
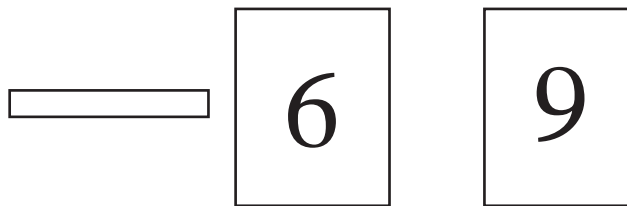
1.   Ask the three pupils to use their three cards to show:

    (a)   the *smallest* fraction possible,

    (b)   the *largest* fraction possible,

    (c)   one,

    (d)   one in a different way.

Now introduce another set of digits, e.g. 1, 2 and 4, and the horizontal bar, this time with groups of 4 pupils.

2.   Ask the pupils to show, using all three digits:

    (a)   the *smallest* fraction,

    (b)   the *largest* fraction,

    (c)   the fraction nearest to *one half*,

    (d)   three.

Many other questions can be posed with different sets of digits.

ACTIVITY 10.3   *Equivalant Fractions 1*

This is an activity for the whole class and is best put into practice with the pupils in rows of equal numbers (see sketch below).

Columns

Each pupil in Column 1 is given a sheet of paper with just one fraction on it – but with space for another 7 fractions.

They each write down a fraction which is *equivalent* to the one already on the paper, and quickly pass it on to their neighbour in the row.

Rows

The process continues until the last person in the row writes down their equivalent fraction.

$$\frac{1}{3}$$

Note that:

1.   all entries must be written in secret so that pupils in other rows cannot see what is being written;

$$\frac{1}{4}$$

2.   all equivalent fractions must be different along the row;

$$\frac{1}{5}$$

3.   you must check the papers to see that the fractions are all correct (another version is for pupils to write their fractions on an OH slide, and then put them on the OHP to check).

Variation

1.   The first pupil in the row chooses the fraction.

2.   Use Columns rather than Rows.

3.   Give more complicated fractions (e.g. $\frac{25}{100}$ or $\frac{3}{51}$).

ACTIVITY 10.4   *Equivalent Fractions 2*

| *Fraction Chart* |

$\frac{0}{1}$ ————————————————————————— $\frac{1}{1}$

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

$\frac{0}{3}$ ——— $\frac{1}{3}$ ——— $\frac{2}{3}$ ——— $\frac{3}{3}$

$\frac{0}{4}$ $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{4}{4}$

$\frac{0}{5}$ $\frac{1}{5}$ $\frac{2}{5}$ $\frac{3}{5}$ $\frac{4}{5}$ $\frac{5}{5}$

$\frac{0}{6}$ $\frac{1}{6}$ $\frac{2}{6}$ $\frac{3}{6}$ $\frac{4}{6}$ $\frac{5}{6}$ $\frac{6}{6}$

$\frac{0}{7}$ $\frac{1}{7}$ $\frac{2}{7}$ $\frac{3}{7}$ $\frac{4}{7}$ $\frac{5}{7}$ $\frac{6}{7}$ $\frac{7}{7}$

$\frac{0}{8}$ $\frac{1}{8}$ $\frac{2}{8}$ $\frac{3}{8}$ $\frac{4}{8}$ $\frac{5}{8}$ $\frac{6}{8}$ $\frac{7}{8}$ $\frac{8}{8}$

$\frac{0}{9}$ $\frac{1}{9}$ $\frac{2}{9}$ $\frac{3}{9}$ $\frac{4}{9}$ $\frac{5}{9}$ $\frac{6}{9}$ $\frac{7}{9}$ $\frac{8}{9}$ $\frac{9}{9}$

$\frac{0}{10}$ $\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10}$ $\frac{4}{10}$ $\frac{5}{10}$ $\frac{6}{10}$ $\frac{7}{10}$ $\frac{8}{10}$ $\frac{9}{10}$ $\frac{10}{10}$

$\frac{0}{11}$ $\frac{1}{11}$ $\frac{2}{11}$ $\frac{3}{11}$ $\frac{4}{11}$ $\frac{5}{11}$ $\frac{6}{11}$ $\frac{7}{11}$ $\frac{8}{11}$ $\frac{9}{11}$ $\frac{10}{11}$ $\frac{11}{11}$

$\frac{0}{12}$ $\frac{1}{12}$ $\frac{2}{12}$ $\frac{3}{12}$ $\frac{4}{12}$ $\frac{5}{12}$ $\frac{6}{12}$ $\frac{7}{12}$ $\frac{8}{12}$ $\frac{9}{12}$ $\frac{10}{12}$ $\frac{11}{12}$ $\frac{12}{12}$

To find a fraction equivalent to $\frac{3}{5}$, place a ruler vertically at $\frac{3}{5}$. The fraction $\frac{6}{10}$ is on the same line, so $\frac{3}{5}$ and $\frac{6}{10}$ are equivalent fractions.

Using the *fraction chart* and a ruler, write down the equivalent fractions of each of the following:
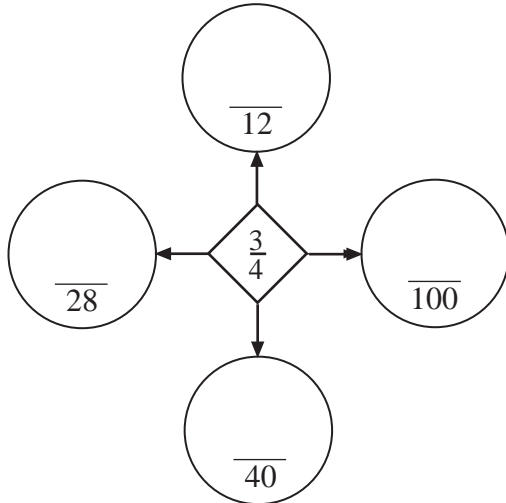
1. $\frac{1}{2}$ =   2. $\frac{2}{3}$ =   3. $\frac{2}{6}$ =   4. $\frac{1}{5}$ =   5. $\frac{3}{4}$ =
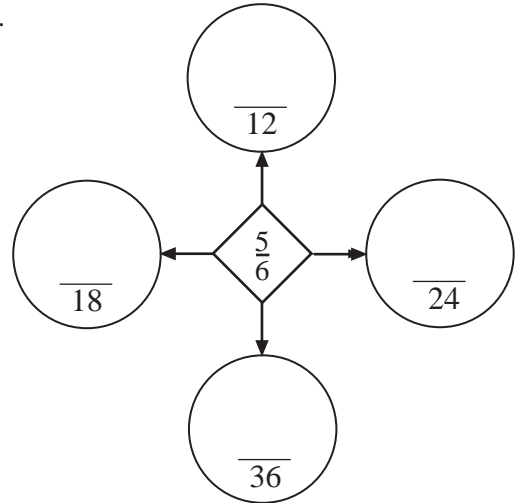
ACTIVITY 10.5

Equivalent Fractions 3

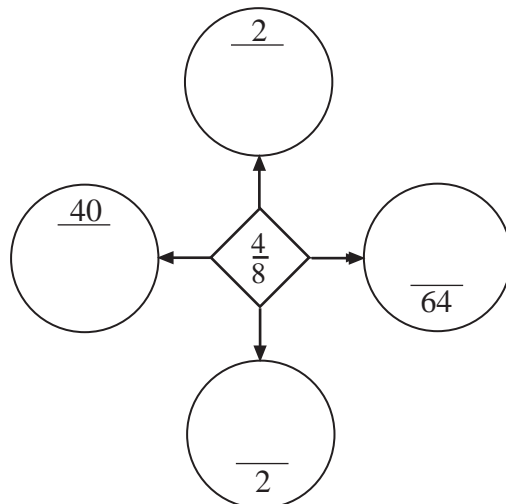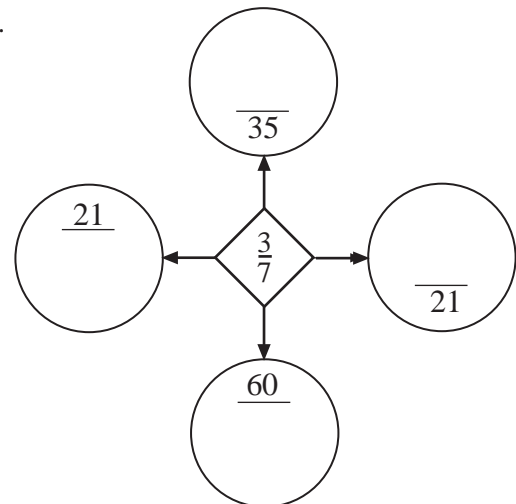Complete each of the following so that the fractions in $\bigcirc$ are equivalent to those in $\diamondsuit$:

1.

$$\frac{}{12}$$

$$\frac{}{28}$$ $$\frac{3}{4}$$ $$\frac{}{100}$$

$$\frac{}{40}$$

2.

$$\frac{}{12}$$

$$\frac{}{18}$$ $$\frac{5}{6}$$ $$\frac{}{24}$$

$$\frac{}{36}$$

3.

$$\frac{2}{}$$

$$\frac{40}{}$$ $$\frac{4}{8}$$ $$\frac{}{64}$$

$$\frac{}{2}$$

4.

$$\frac{}{35}$$

$$\frac{21}{}$$ $$\frac{3}{7}$$ $$\frac{}{21}$$

$$\frac{60}{}$$

5.

$$\frac{}{5}$$

$$\frac{}{10}$$ $$\frac{3}{15}$$ $$\frac{}{100}$$

$$\frac{}{20}$$

6.

$$\frac{}{6}$$

$$\frac{}{12}$$ $$\frac{16}{24}$$ $$\frac{}{60}$$

$$\frac{}{3}$$
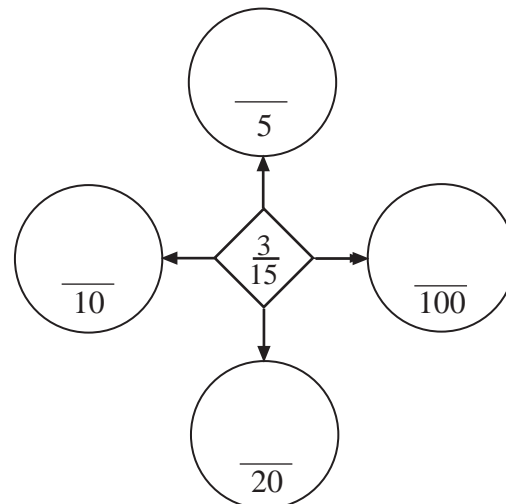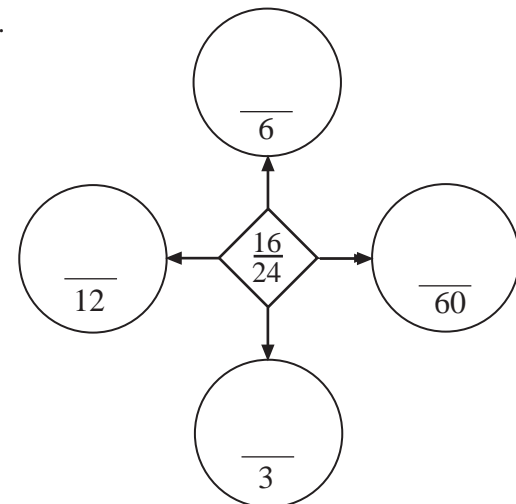
ACTIVITIES 10.1 - 10.5   *Notes and Solutions*

Notes and solutions are given only where appropriate.

10.2 1. (a) $\dfrac{6}{9}$ (b) $\dfrac{9}{6}$ (c) and (d) $\dfrac{6}{6}$ or $\dfrac{9}{9}$

2. (a) $\dfrac{1}{42}$ (b) $\dfrac{42}{1}$ (c) $\dfrac{4}{12}$ (d) $\dfrac{12}{4}$

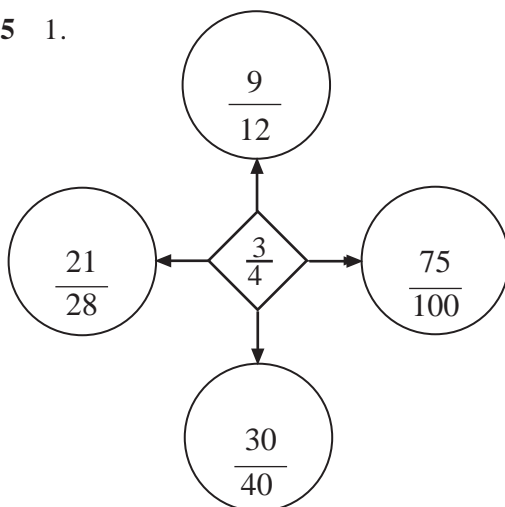**10.4** 1. $\dfrac{1}{2} = \dfrac{2}{4} = \dfrac{3}{6} = \dfrac{4}{8} = \dfrac{5}{10} = \dfrac{6}{12}$

2. $\dfrac{2}{3} = \dfrac{4}{6} = \dfrac{6}{9} = \dfrac{8}{12}$

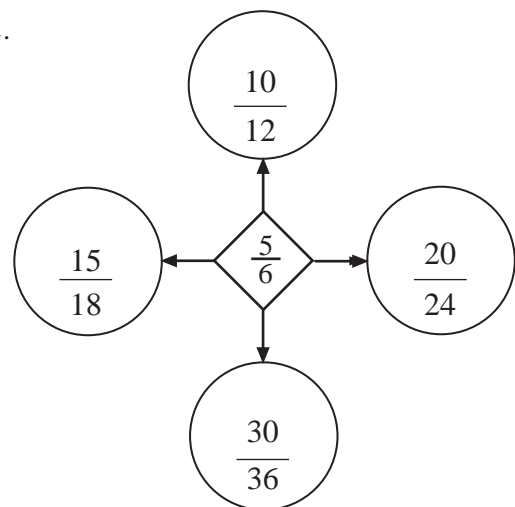3. $\dfrac{2}{6} = \dfrac{1}{3} = \dfrac{3}{9} = \dfrac{4}{12}$

4. $\dfrac{1}{5} = \dfrac{2}{10}$

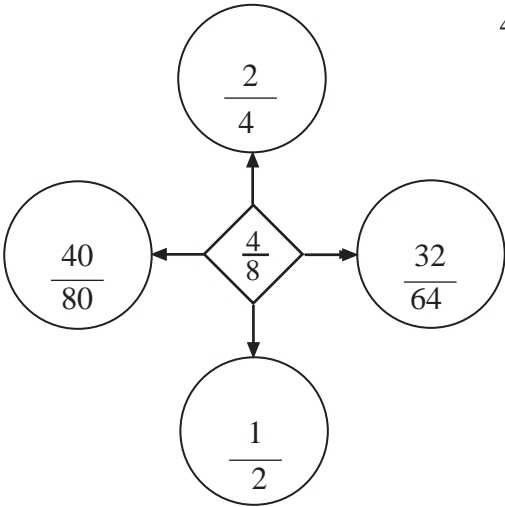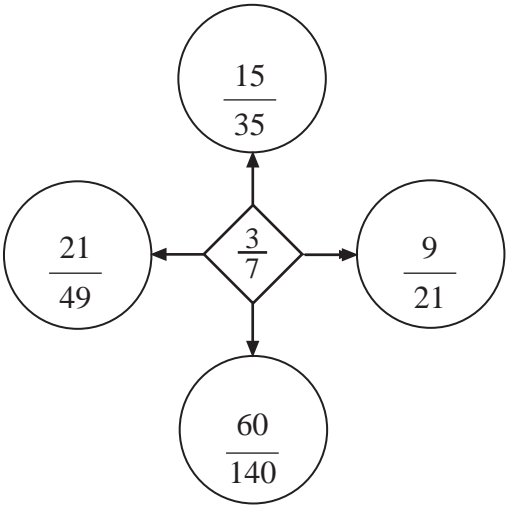5. $\dfrac{3}{4} = \dfrac{6}{8} = \dfrac{9}{12}$

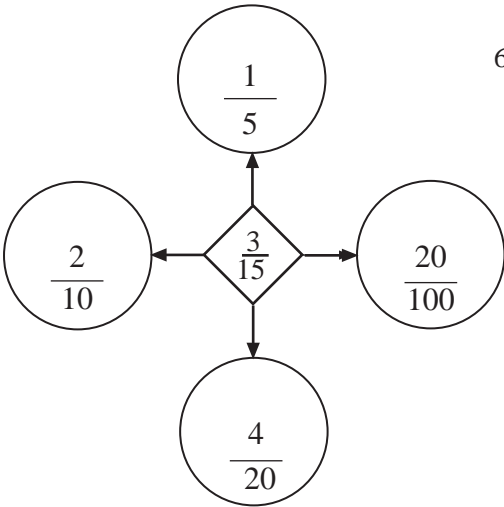**10.5** 1.

2.

ACTIVITY 10.5

Notes and Solutions

3.

$$\frac{2}{4}$$

$$\frac{40}{80}$$

$$\frac{4}{8}$$

$$\frac{32}{64}$$

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

4.

$$\frac{15}{35}$$

$$\frac{21}{49}$$

$$\frac{3}{7}$$

$$\frac{9}{21}$$

$$\frac{60}{140}$$

5.

$$\frac{1}{5}$$

$$\frac{2}{10}$$

$$\frac{3}{15}$$

$$\frac{20}{100}$$

$$\frac{4}{20}$$

6.

$$\frac{4}{6}$$

$$\frac{8}{12}$$

$$\frac{16}{24}$$

$$\frac{40}{60}$$

$$\frac{2}{3}$$