Fractions, decimals and percentages – Teacher notes

Activity description

These resources provide a variety of activities which can be used to give students practice in converting between fractions, decimals and percentages.

Suitability

Level 1 (Foundation); could also be used for revision at Level 2.

Time

2–3 hours in total

Resources

Student information sheet and student worksheets
'Follow me' cards – you will need to copy, laminate and cut out the sheets of cards you have selected

Equipment

Calculator (optional), pen

Key mathematical language

Percentage, fraction, decimal, convert, equivalent

Notes on the activities

The diagrams in the slideshow illustrate the connections between fractions, decimals and percentages, and can be used to explain the methods.

The student sheets start with an information sheet summarising these methods, followed by a practice worksheet on pages 2 and 3. Page 4 has questions you could use at the end of the session to help students reflect on their work. These questions are also given at the end of the slideshow.

The rest of the activities on student sheets pages 5 to 14 can reinforce work done or be kept for later use. For example, any of them could be used as a starter for a session on percentage change.

Page 5 lists the most common fractions; students should complete the other columns. Page 6 gives a variety of percentages, fractions and decimals, and asks students to find the equivalents. Either of these could be completed then kept for reference or revision.

Pages 7 to 14 provide four sets of 'Follow me' cards.
Sets A and B give practice in converting fractions to percentages.
Sets C and D give practice in converting percentages to fractions.

The smaller sets of cards, A and C, include just the 12 simplest pairs. These can be used for individual work, pairs or small groups of learners. You will need one set of cards for each person, pair or group. Ask students to use them like dominoes, matching the fraction or percentage on the right of

each card to the equivalent value on the left of the following card. The cards will form a closed loop.

The larger sets of cards, B and D, are intended for larger groups of learners or a whole class activity. Just one set of cards is needed for a whole class. Each set of cards forms a closed loop, but you can use fewer cards if you wish. The important thing is to use consecutive cards from the set.

The tutor (or group leader) keeps the first and last cards from the whole or partial set, then shuffles and deals the rest of the cards to the learners.

The tutor (or group leader) then starts by reading the right-hand side of the first card. The learner who has the equivalent value then reads the left-hand side of his/her card, followed by the right-hand side.

The activity continues in this way until all cards have been used, with the tutor (or group leader) reading the left hand side of the last card at the end.

During the activity

Students can work individually or in pairs or small groups.

You could allow the use of calculators, but will need to explain the use of different buttons.

Points for discussion

It is worth discussing the connection between the line in the fraction as a division sign and the percentage sign meaning 'out of 100'.

Extensions

Apply the methods to real data.

Find examples of percentages, fractions and decimals in newspapers, catalogues, circulars, advertisements, or packaging, and make a classroom display.

Answers

See the following pages.

Answers

1 Decimals to fractions

$0.3 = \frac{3}{10}$ $\qquad$ $0.5 = \frac{1}{2}$ $\qquad$ $0.6 = \frac{3}{5}$ $\qquad$ $0.02 = \frac{1}{50}$

$0.05 = \frac{1}{20}$ $\qquad$ $0.25 = \frac{1}{4}$ $\qquad$ $0.36 = \frac{9}{25}$ $\qquad$ $0.125 = \frac{1}{8}$

2 Fractions to decimals

$\frac{7}{10} = 0.7$ $\qquad$ $\frac{1}{5} = 0.2$ $\qquad$ $\frac{2}{5} = 0.4$ $\qquad$ $\frac{3}{4} = 0.75$

$\frac{7}{8} = 0.875$ $\qquad$ $\frac{2}{3} = 0.67$ (2 dp) $\qquad$ $\frac{9}{20} = 0.45$ $\qquad$ $\frac{7}{25} = 0.28$

3 Percentages to decimals

3% = 0.03 $\qquad$ 30% = 0.3 $\qquad$ 25% = 0.25 $\qquad$ 80% = 0.8

8% = 0.08 $\qquad$ 12% = 0.12 $\qquad$ 67% = 0.67 $\qquad$ 17.5% = 0.175

4 Percentages to fractions

$20\% = \frac{1}{5}$ $\qquad$ $75\% = \frac{3}{4}$ $\qquad$ $5\% = \frac{1}{20}$ $\qquad$ $30\% = \frac{3}{10}$

$40\% = \frac{2}{5}$ $\qquad$ $15\% = \frac{3}{20}$ $\qquad$ $24\% = \frac{6}{25}$ $\qquad$ $35\% = \frac{7}{20}$

5 Decimals to percentages

0.25 = 25% $\qquad$ 0.5 = 50% $\qquad$ 0.7 = 70% $\qquad$ 0.07 = 7%

0.45 = 45% $\qquad$ 0.09 = 9% $\qquad$ 0.4 = 40% $\qquad$ 0.375 = 37.5%

6 Fractions to percentages

$\frac{1}{10} = 10\%$ $\qquad$ $\frac{1}{5} = 20\%$ $\qquad$ $\frac{9}{10} = 90\%$ $\qquad$ $\frac{3}{4} = 75\%$

$\frac{4}{5} = 80\%$ $\qquad$ $\frac{17}{20} = 85\%$ $\qquad$ $\frac{1}{3} = 33.3\%$ (1 dp) $\qquad$ $\frac{2}{3} = 66.7\%$ (1 dp)

Fraction	Decimal	Percentage
$\frac{1}{10}$	0.1	10%
$\frac{1}{5}$	0.2	20%
$\frac{3}{10}$	0.3	30%
$\frac{2}{5}$	0.4	40%
$\frac{1}{2}$	0.5	50%
$\frac{3}{5}$	0.6	60%
$\frac{7}{10}$	0.7	70%
$\frac{4}{5}$	0.8	80%
$\frac{9}{10}$	0.9	90%
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%

Percentage	Fraction	Decimal
10%	$\dfrac{1}{10}$	0.1
20%	$\dfrac{1}{5}$	0.2
30%	$\dfrac{3}{10}$	0.3
40%	$\dfrac{2}{5}$	0.4
50%	$\dfrac{1}{2}$	0.5
60%	$\dfrac{3}{5}$	0.6
70%	$\dfrac{7}{10}$	0.7
80%	$\dfrac{4}{5}$	0.8
90%	$\dfrac{9}{10}$	0.9
25%	$\dfrac{1}{4}$	0.25
75%	$\dfrac{3}{4}$	0.75