

Linking Fractions, Decimal Fractions and Percentages

Being able to carry out calculations and move between different forms is an important skill. It allows for different ways to solve problems efficiently, including mental calculations. Learners should be able to choose the most appropriate form to display the answer which will depend on context of the question or problem.

Hints

'Percent' means 'per 100' and therefore all percentages can be easily changed to fractions and decimal fractions.

To carry out calculations with ease, and without calculators, pupils should be able to simplify fractions.

It is helpful for pupils to build up a toolkit of useful percentages.

Percentage Toolkit

Percentage	1%	10%	25%	$33\frac{1}{3}\%$	50%	$66\frac{2}{3}\%$	75%
Equivalent Fraction	$\frac{1}{100}$	$\frac{1}{10}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{2}{3}$	$\frac{3}{4}$

Example 1 **Find 30% of £54**

$$10\% \text{ of } 54 = \frac{1}{10} \text{ of } 54 = 54 \div 10 = 5.40$$

$$30\% \text{ of } 54 = 3 \times (10\% \text{ of } 54) = 3 \times 5.40 = 16.20$$


$$\text{So } 30\% \text{ of } \pounds 54 = \pounds 16.20$$



Use 10% from toolkit then multiply answer by 3

More Examples

Example 2 Write 85% as a fraction in its simplest form.

$$\begin{aligned} & 85\% \\ &= \frac{85}{100} \\ &= \frac{17}{20} \end{aligned}$$


Divide numerator and denominator by 5

Example 3 Sharon scored 54 out of 75 in her French assessment. To gain a grade A she must score over 70%. Has Sharon achieved a grade A?

Without a calculator we can use equivalent fractions

$$\frac{54}{75} = \frac{18}{25} = \frac{72}{100} = 72\%$$

With a calculator we can simply divide

$$\frac{54}{75} = 54 \div 75 = 0.72 = 72\%$$

As Sharon scored more than 70%, she achieved a grade A

Resources

Tutorials:

<http://www.visnos.com/demos/percentage-fraction-decimals-grid>
<http://www.bbc.co.uk/skillswise/topic/percentages>

Games:

<http://www.bbc.co.uk/skillswise/game/ma18comp-game-percentages-andfractions-side-by-side>
<https://www.mathplayground.com/visualpercent.html>