

Discussion Problems

Step 1: Fractions to Percentages

National Curriculum Objectives:

Mathematics Year 6: (6F11) [Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts](#)

About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More [Year 6 Percentages](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Fractions to Percentages

1. Isabelle has a range of fractions and percentages written on different cards.

When converted to percentages, she has created 3 different groups of cards which total 100% containing no more than 3 cards.

Card A 2%	Card B 16%	Card C 32%	Card D $\frac{2}{5}$	Card E 2%	Card F $\frac{3}{10}$	Card G $\frac{2}{20}$
Card H $\frac{17}{25}$	Card I $\frac{2}{4}$	Card J $\frac{17}{50}$	Card K $\frac{1}{2}$	Card L 18%	Card M 10%	Card N $\frac{50}{100}$

Explore the different possible combinations of cards she could have placed in each group.

Is it possible to make a group containing four or more cards to total 100%?

DP

2. Mr Payne has marked some tests and is trying to work out the final percentage scored by each student.

He says,



Each test is out of 100. Two students have managed to score a final percentage above 65%.

Student	Test A	Test B	Total marks from both tests	Final %
Tabitha	66%	$\frac{19}{25}$	$\frac{142}{200}$	
Erin	$\frac{2}{5}$	$\frac{17}{50}$	$\frac{74}{200}$	
Daniel	$\frac{1}{2}$	68%	$\frac{118}{200}$	
Jacob	58%	$\frac{6}{10}$	$\frac{118}{200}$	
Serenity	$\frac{12}{20}$	70%	$\frac{130}{200}$	
Michael				

Complete the table and investigate whether Mr Payne is correct.

Michael has managed to score a final percentage that is higher than Jacob, but lower than Serenity. Explore what his results could be.

DP

Fractions to Percentages

1. Isabelle has a range of fractions and percentages written on different cards.

When converted to percentages, she has created 3 different groups of cards which total 100% containing no more than 3 cards.

Card A 2%	Card B 16%	Card C 32%	Card D $\frac{2}{5}$	Card E 2%	Card F $\frac{3}{10}$	Card G $\frac{2}{20}$
Card H $\frac{17}{25}$	Card I $\frac{2}{4}$	Card J $\frac{17}{50}$	Card K $\frac{1}{2}$	Card L 18%	Card M 10%	Card N $\frac{50}{100}$

Explore the different possible combinations of cards she could have placed in each group.

Various answers, for example:

Group 1 = Cards A, H and F, Group 2 = Cards B, J and K, Group 3 = Cards I and N.

Is it possible to make a group containing four or more cards to total 100%?

Various answers, for example: Cards C, D, L and M

DP

2. Mr Payne has marked some tests and is trying to work out the final percentage scored by each student.

He says,



Each test is out of 100. Two students have managed to score a final percentage above 65%.

Student	Test A	Test B	Total marks from both tests	Final %
Tabitha	66%	$\frac{19}{25}$	$\frac{142}{200}$	71%
Erin	$\frac{2}{5}$	$\frac{17}{50}$	$\frac{74}{200}$	37%
Daniel	$\frac{1}{2}$	68%	$\frac{118}{200}$	59%
Jacob	58%	$\frac{6}{10}$	$\frac{118}{200}$	59%
Serenity	$\frac{12}{20}$	70%	$\frac{130}{200}$	65%
Michael	45%	$\frac{3}{4}$	$\frac{120}{200}$	60%

Complete the table and investigate whether Mr Payne is correct.

No, Mr Payne is incorrect. Tabitha is the only student who has scored a final percentage above 65%.

Michael has managed to score a final percentage that is higher than Jacob, but lower than Serenity. Explore what his results could be.

Various answers, for example: see above.

DP