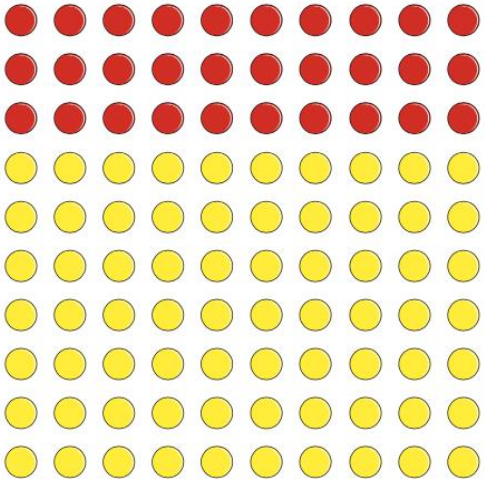
Fractions to percentages

1



a) What fraction of the array of counters is red? $\frac{3}{10}$

b) What fraction of the array of counters is yellow? $\frac{7}{10}$

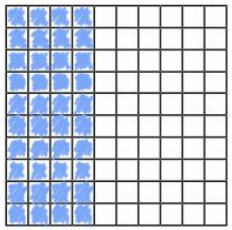
c) What percentage of the array of counters is red? 30 %

d) What percentage of the array of counters is yellow? 70 %

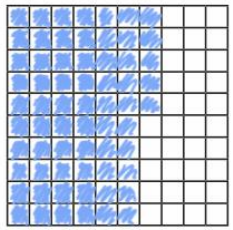
e) What do you notice about the two percentages?

2 **a)** Shade the hundred squares to represent the fractions.

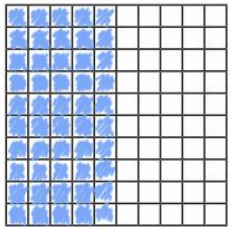
$\frac{40}{100}$



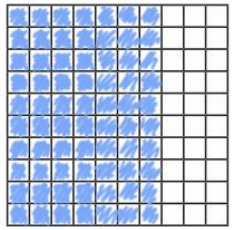
$\frac{65}{100}$



$\frac{1}{2}$



$\frac{7}{10}$



b) Write the fractions as percentages.

$\frac{40}{100}$ = 40 % $\frac{65}{100}$ = 65 %

$\frac{1}{2}$ = 50 % $\frac{7}{10}$ = 70 %

c) Compare your shaded grids with a partner's.

What is the same and what is different?

3 Fill in the missing numbers.

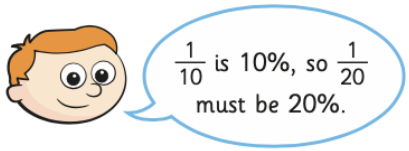
a) $\frac{9}{10} = \frac{90}{100} = 90\%$

b) $\frac{9}{20} = \frac{45}{100} = 45\%$

c) $\frac{9}{50} = \frac{18}{100} = 18\%$

d) $\frac{9}{25} = \frac{36}{100} = 36\%$

4



Explain the mistake that Ron has made.

What is the correct answer?

$\frac{1}{20} = 5\%$

5 Convert the fractions to percentages.

a) $\frac{1}{4} = 25\%$

$\frac{1}{2} = 50\%$

$\frac{3}{4} = 75\%$

b) $\frac{1}{5} = 20\%$

$\frac{2}{5} = 40\%$

$\frac{4}{5} = 80\%$

c) $\frac{16}{20} = 80\%$

$\frac{8}{20} = 40\%$

$\frac{4}{20} = 20\%$

d) $\frac{45}{50} = 90\%$

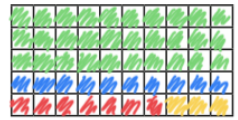
$\frac{9}{10} = 90\%$

$\frac{18}{20} = 90\%$

e) What do you notice?

6 a) Shade the grid in the given proportions.

- $\frac{3}{5}$ green
- $\frac{4}{20}$ blue
- 14% red
- the rest yellow



b) What percentage of the grid is yellow?

6 %

7 a) Use each digit card once to make the statements correct.

$\frac{1}{2} > \frac{4}{5}$ 0%

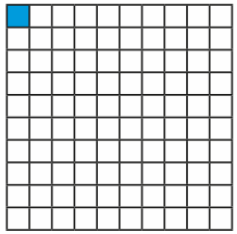
$75\% = \frac{3}{4}$

$\frac{3}{5} < 65\%$

b) Are there any other solutions?

Equivalent FDP

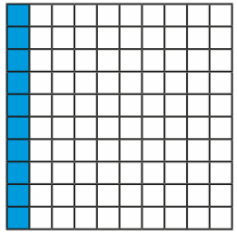
1 What fraction, decimal and percentage of each grid is shaded blue?



fraction = $\frac{1}{100}$

decimal = 0·01

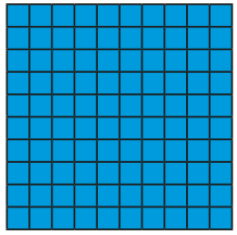
percentage = 1 %



fraction = $\frac{1}{10}$

decimal = 0·1

percentage = 10 %

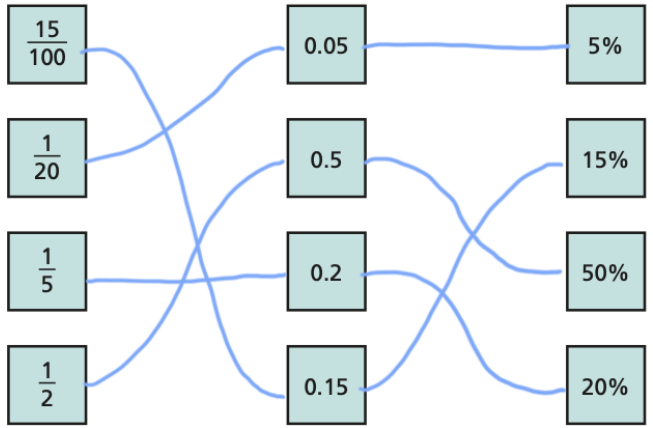


fraction = $\frac{100}{100}$

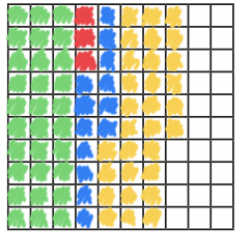
decimal = 1

percentage = 100 %

2 Match the equivalent fractions, decimals and percentages.



3 **a)** Shade the grid in the given proportions.



- $\frac{3}{10}$ green
- 0.03 red
- 13% blue
- 0.3 yellow

b) What proportion of the grid is unshaded?

Write your answer as a fraction, decimal and percentage.

fraction = $\frac{6}{25}$ decimal = 0·24 percentage = 24 %

4 Complete the table.

Fraction	Decimal	Percentage
$\frac{21}{100}$	0.21	21%
$\frac{3}{25}$	0·12	12%
$\frac{2}{10}$	0·2	20%
$\frac{2}{5}$	0.4	40%
$\frac{11}{25}$	0.44	44%
$\frac{1}{25}$	0·04	4%
$\frac{3}{4}$	0·75	75%
$\frac{99}{100}$	0.99	99%

5 Amir was asked to complete the statement using <, > or =.

14% (>) 0.4

14 is greater than 4

What mistake has Amir made?

He hasn't compared them in the same form. 0·4 = 40% and 40% > 14% so 14% < 0·4

6 Match the decimal cards to the people.

My decimal is $\frac{4}{10}$ less than 100%.

My decimal cannot be simplified when it is written as a fraction.

My decimal is 10% less than $\frac{3}{4}$

My decimal is greater than 60%.

0.65

0.57

0.61

0.6

7 Use the digit cards to write a decimal greater than $\frac{1}{5}$ but less than 40%.

You may not use a card more than once in each number.

0	1	2	3	4	5

Eg. 0 . 2 4

How many other answers can you find?

Order FDP

1 Write <, > or = to complete the statements.

a) 64% > 0.46

b) 0.96 < $\frac{97}{100}$

c) $\frac{3}{5}$ > 35%

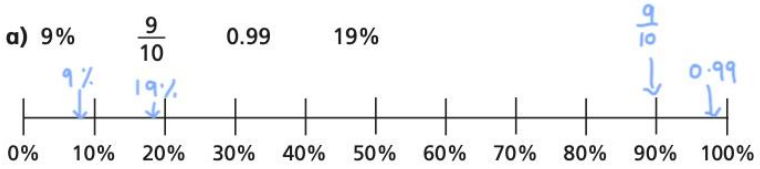
d) 0.8 = 80%

e) 67% < $\frac{7}{10}$

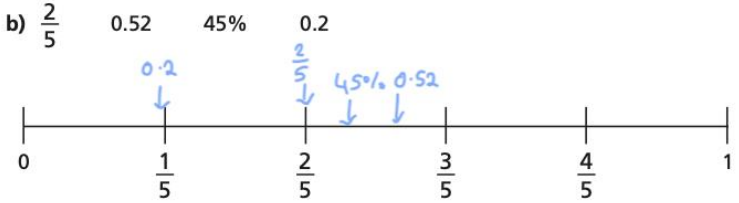
f) $\frac{7}{20}$ > 0.3

2 Draw arrows to estimate the positions of the fractions, decimals and percentages on the number line.

a) 9% $\frac{9}{10}$ 0.99 19%



b) $\frac{2}{5}$ 0.52 45% 0.2



3 Write the fractions, decimals and percentages in ascending order.

a) $\frac{7}{10}$ $\frac{13}{100}$ 21% 0.9

$\frac{13}{100}$, 21%, $\frac{7}{10}$, 0.9

b) 0.6 61% $\frac{37}{50}$ 0.66

0.6, 61%, 0.66, $\frac{37}{50}$

c) 47% 0.89 $\frac{63}{100}$ 12%

12%, 47%, $\frac{63}{100}$, 0.89

d) Which part was easiest to order: a), b) or c)? _____

Why?

Various answers.

e) Which set was most difficult to order: a), b) or c)? _____

Why?

Various answers.

f) Compare answers with a partner.

What is the same and what is different?

4 These fractions, decimals and percentages are in descending order.

99% $\frac{89}{100}$ 0.7 [ ] 0.5 49%

Tick the fractions, decimals and percentages that could fill the gap.

0.78 | 51% ✓ | $\frac{3}{5}$ ✓ | 0.6 ✓ | $\frac{4}{10}$

5 Tommy scored $\frac{40}{50}$ on a Maths test.

Aisha got 78% of the test correct.

Aisha thinks she has done better because 78 is greater than 40

Do you agree with Aisha? No

Explain your answer.

$\frac{40}{50}$ = 80% and 80% > 78% so Tommy did better.

6 Huan, Nijah and Scott each started with a 1-litre bottle of juice.

Huan drank 0.55 litres.

Nijah drank 59% of her juice.

Scott has $\frac{4}{10}$ of his juice left.

Who drank the most? Show your working.

Scott drank the most.

Who drank the least? Show your working.

Huan drank the least.

7 **a)** Use the digit cards to make the statement correct.

1	2	3	4	5	6	7	8	9	10

$0.3 < \frac{4}{10} < 80\%$

How many different solutions can you find?

Various answers.

b) Use the digit cards to write a percentage greater than $\frac{2}{5}$ but less than 75%.

0	2	3	4	6	7

$\frac{2}{5} <$ 0·43 < 0.75

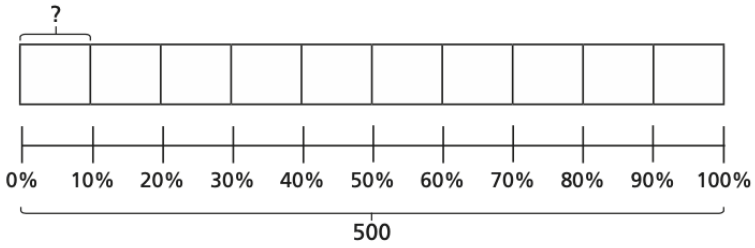
How many different percentages can you find?

Various answers.

Compare answers with a partner.

Percentage of an amount (2)

1 **a)** Use the bar model to find 10% of 500



10% of 500 = 50

b) Use your answer to part a) to help you complete the calculations.

20% of 500 = 100

70% of 500 = 350

90% of 500 = 450

60% of 500 = 300

30% of 500 = 150

100% of 500 = 500

2

To find 5% you can find 10% and then halve it.

Use Dora's method to complete the calculations.

a) 5% of 40 = 2

b) 5% of 400 = 20

c) 5% of 4,000 = 200

d) 5% of 2,000 = 100

e) 5% of 6,000 = 300

What do you notice about your answers?

3 Some children are asked to find 75% of 340

I will find 25% and multiply it by 3

a) Use Dexter's method to find 75% of 340

255

I will find 10% and multiply it by 7, then find 5% and add them together.

b) Use Alex's method to find 75% of 340

255

I will find 25% and 50% and add them together.

c) Use Amir's method to find 75% of 340

255

d) Are there any other methods you could use?

4 Talk to a partner about different methods for finding these percentages.

20% 90% 60% 15% 55% 40%

Use your preferred method to calculate the percentages.

a) 20% of 1,000 = 200

20% of 550 = 110

20% of 40 = 8

b) 90% of 1,000 = 900

90% of 4,230 = 3,807

90% of 90 = 81

c) 60% of 1,000 = 600

60% of 400 = 240

60% of 98 = 58·8

d) 15% of 1,000 = 150

15% of 300 = 45

15% of 30 = 4·5

e) 55% of 1,000 = 550

55% of 4,400 = 2,420

55% of 8 = 4·4

f) 40% of 1,000 = 400

40% of 400 = 160

40% of 98 = 39·2

5 Ron is calculating these percentages.

10% of 20 20% of 10

20% is double 10%, and 10 is half of 20, so I know these will both have the same answer.

How does Ron know this?

6 **a)** Complete the calculations.

20% of 40 = 8 25% of 60 = 15

40% of 20 = 8 60% of 25 = 15

b) What do you notice about the answers?

Each column is the same.

c) Does this always happen? Investigate with other examples.

d) Talk about your findings with a partner.