Steps to Success

Lockdown Learning - DT	
Date	21.1.21
Subject/s	Maths
Learning Objective 	To convert between fractions and decimals

		SA 	TA 
Success Criteria 	I can use my knowledge of decimal place value to convert between fractions and decimals		
	I can use my knowledge of factors to find equivalent fractions.		
	I can change to equivalent fractions with denominators of 10, 100 and 1000		
Support	Independent Adult Support ( ) Group Work		

Pre-task

What is..

0.5 as a fraction

$\frac{2}{100}$ as a decimal

$\frac{3}{25}$ as a decimal

$\frac{6}{50}$ as a decimal

Pre-task - Answers

0.5 as a fraction = $\frac{1}{2}$

$\frac{2}{100}$ as a decimal = 0.02

$\frac{3}{25}$ as a decimal = 0.12

$\frac{8}{50}$ as a decimal = 0.16

Teacher led

It is really easy to change a fraction to a decimal if the denominator is 10, 100 or 1000. We just need our knowledge of decimal place value. A place value grid can help if we get stuck

$\frac{3}{10}$ = 0.3

$\frac{4}{100}$ = 0.04

$\frac{65}{100}$

$\frac{8}{1000}$

1s	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
0	3		
0	0	4	
0	6	5	
0	0	0	8

Now we'll look at converting fractions which have denominators which can be changed to tenths, hundredths or thousandths.

Look at this example

In this example we have 3 fifths. The denominator is 5, which is a factor of 10, so I know I can change it into tenths. Remember , whatever we do to the denominator, we must do the same to the numerator

$\frac{3}{5}$ 3 x 2 = 6

5 x 2 = 10

I know that 5 x 2 = 10, so I do the same to the numerator 3 x 2 = 6

So $\frac{3}{5} = \frac{6}{10} = 0.6$

Let's try another.

In this example we have 1 twenty-fifth. The denominator is 25, which is a factor of 100, so I know I can change it into hundredths. Remember#, whatever we do to the denominator, we must do the same to the numerator

$\frac{5}{25}$ 5 x 4 = 20

25 x 4 = 100

I know that 25 x 4 = 100, so I do the same to the numerator 5 x 4 = 20

So $\frac{5}{25} = \frac{20}{100} = 0.2$

Let's try another.

In this example we have 3 quarters. The denominator is 4, which is a factor of 100, so I know I can change it into hundredths. Remember, whatever we do to the denominator, we must do the same to the numerator

$\frac{3}{4}$ 3 x 25 = 75

4 x 25 = 100

I know that 4 x 25 = 100, so I do the same to the numerator 3 x 25 = 75

So $\frac{3}{4} = \frac{75}{100} = 0.75$

Let's try another.

In this example we have 11 two-hundredths. The denominator is 200, which is a factor of 1000, so I know I can change it into thousandths. Remember, whatever we do to the denominator, we must do the same to the numerator

$\frac{11}{200}$ 3 x 25 = 75

4 x 25 = 100

I know that 200 x 5 = 1000, so I do the same to the numerator 11 x 5 = 55

So $\frac{11}{200} = \frac{55}{1000} = 0.055$

Fluency

a) Use a place value grid to change these fractions to decimals .

1. $\frac{76}{100}$ = 0.76
2. $\frac{49}{100}$ = _____
3. $\frac{20}{100}$ = _____
4. $\frac{80}{100}$ = _____
5. $\frac{66}{100}$ = _____
6. $\frac{14}{100}$ = _____
7. $\frac{84}{100}$ = _____
8. $\frac{16}{100}$ = _____
9. $\frac{30}{100}$ = _____

b) Use equivalent fractions to convert these fractions to decimals

$\frac{42}{50}$ = _____

$\frac{10}{20}$ = _____

$\frac{4}{25}$ = _____

$\frac{39}{50}$ = _____

$\frac{7}{100}$ = _____

$\frac{14}{20}$ = _____

$\frac{23}{25}$ = _____

$\frac{78}{50}$ = _____

$\frac{34}{25}$ = _____

$\frac{89}{50}$ = _____

Answers

a)

1. $\frac{76}{100} = 0.76$

2. $\frac{49}{100} = 0.49$

3. $\frac{20}{100} = 0.2$

4. $\frac{80}{100} = 0.8$

5. $\frac{66}{100} = 0.66$

6. $\frac{14}{100} = 0.14$

7. $\frac{84}{100} = 0.84$

8. $\frac{16}{100} = 0.16$

9. $\frac{30}{100} = 0.3$

b)

$\frac{42}{50} = 0.84$

$\frac{10}{20} = 0.5$

$\frac{4}{25} = 0.16$

$\frac{39}{50} = 0.78$

$\frac{7}{100} = 0.07$

$\frac{14}{20} = 0.7$

$\frac{23}{25} = 0.92$

$\frac{78}{50} = 1.56$

$\frac{34}{25} = 1.36$

$\frac{89}{50} = 1.78$

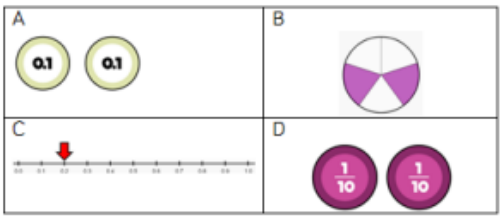
Problem Solving and Reasoning

Use it!

Explain it!

Odd one out.

Which of the images below is the odd one out?



Explain why.

Convince me!

Explain it!

Sam says,

To convert a fraction to a decimal, take the numerator and put it after the decimal point.

E.g. $\frac{21}{100} = 0.21$

Write two examples of converting fractions to decimals to prove this does not always work.

Explain it!

Alex says,

0.84 is equivalent to $\frac{84}{10}$

Do you agree?
Explain why.

Use it!

Match the fractions to the equivalent decimals.

$\frac{4}{10}$	0.09
$\frac{37}{100}$	0.4
$\frac{9}{100}$	0.37

Answers

Possible answer:

B is the odd one out because it shows $\frac{2}{5}$, which is $\frac{4}{10}$

The other images show $\frac{2}{10}$

Possible responses could include where there are no tenths in a number or where there is an improper fraction:

$\frac{1}{100}$ is not equal to 0.1

I disagree because there are 8 tenths and 4 hundredths. Also 0.84 is smaller than one whole but $\frac{84}{10}$ is larger than one because the numerator is larger than the denominator.

As a mixed number $\frac{84}{10}$ would be 8.4 not 0.84.

4/10 = 0.4

37/100 = 0.37

9/100 = 0.09