Converting Decimals and Percentages

Fill in the blank spaces in the table by calculating the equivalent decimal or percentage.

Percentage	Decimal
	0.03
	0.125
15.2%	
2%	
29.37%	
100%	
	0.0507
83.7%	
	1.25

Converting Decimals and Percentages

Fill in the blank spaces in the table by calculating the equivalent decimal or percentage.

Percentage	Decimal
	0.03
	0.125
15.2%	
2%	
29.37%	
100%	
	0.0507
83.7%	
	1.25

Converting Decimals and Percentages
Answers

Percentage	Decimal
3%	0.03
12.5%	0.125
15.2%	**0.152**
2%	**0.02**
29.37%	**0.2937**
100%	**1.00 or 1**
5.07%	0.0507
83.7%	**0.837**
125%	1.25

Converting Decimals and Percentages

Fill in the blank spaces in the table by calculating the equivalent decimal or percentage.

Percentage	Decimal
30%	
	0.88
	0.56
27%	
	0.42
	0.65
45%	
75%	
	0.05

Converting Decimals and Percentages

Fill in the blank spaces in the table by calculating the equivalent decimal or percentage.

Percentage	Decimal
30%	
	0.88
	0.56
27%	
	0.42
	0.65
45%	
75%	
	0.05

Converting Decimals and Percentages
Answers

Percentage	Decimal
30%	**0.30**
88%	0.88
56%	0.56
27%	**0.27**
42%	0.42
65%	0.65
45%	**0.45**
75%	**0.75**
5%	0.05

Converting Decimals and Percentages

Fill in the blank spaces in the table by calculating the equivalent decimal or percentage.

Percentage	Decimal
	0.03
	0.125
15.2%	
2%	
	0.27
100%	
	0.015
83.7%	
5%	

Converting Decimals and Percentages

Fill in the blank spaces in the table by calculating the equivalent decimal or percentage.

Percentage	Decimal
	0.03
	0.125
15.2%	
2%	
	0.27
100%	
	0.015
83.7%	
5%	

Converting Decimals and Percentages
Answers

Percentage	Decimal
3%	0.03
12.5%	0.125
15.2%	**0.152**
2%	**0.02**
27%	0.27
100%	**1.00 or 1**
15%	0.015
83.7%	**0.837**
5%	**0.05**

Instructions: Cut out each decimal and percentage and match with its equivalent.

Converting Decimals and Percentages **Card Sort**

50%

Converting Decimals and Percentages **Card Sort**

15%

Converting Decimals and Percentages **Card Sort**

0.10

Converting Decimals and Percentages **Card Sort**

0.25

Converting Decimals and Percentages **Card Sort**

0.125

Converting Decimals and Percentages **Card Sort**

0.75

Converting Decimals and Percentages **Card Sort**

10%

Converting Decimals and Percentages **Card Sort**

25%

Converting Decimals and Percentages **Card Sort**

20%

Converting Decimals and Percentages **Card Sort**

0.01

Converting Decimals and Percentages **Card Sort**

0.05

Converting Decimals and Percentages **Card Sort**

0.15

Converting Decimals and Percentages **Card Sort**

5%

Converting Decimals and Percentages **Card Sort**

100%

Converting Decimals and Percentages **Card Sort**

1%

Converting Decimals and Percentages **Card Sort**

0.50

Converting Decimals and Percentages **Card Sort**

12.5%

Converting Decimals and Percentages **Card Sort**

0.20

Converting Decimals and Percentages **Card Sort**

75%

Converting Decimals and Percentages **Card Sort**

1

Converting Decimals and Percentages Card Sort **Answers**

50%	**0.50**
25%	0.25
75%	0.75
10%	**0.10**
20%	**0.20**
15%	0.15
5%	**0.05**
1%	**0.01**
12.5%	**0.125**
100%	1

Converting Decimals and Percentages Loop Cards

Teacher Instructions

Cut out each loop card and hand out to students so they have one each. There are 30 cards in the set. If the class size is smaller than this, students can have more than one card so that they are all used up.

Any student can start the activity, given the answers ultimately form a continuous loop. All students will need to listen carefully to the question; if they have the equivalent answer, they must read it out, followed by the question and so forth.

Answer	Questions
24.2%	What is the percentage equivalent of 0.75?
75%	What is the decimal equivalent of 5%?
0.05	What is the percentage equivalent of 0.85?
85%	What is the percentage equivalent of 0.23?
23%	What is the decimal equivalent of 1%?
0.01	What is the decimal equivalent of 20%?
0.20 or 0.2	What is the percentage equivalent of 0.55?
55%	What is the percentage equivalent of 0.15?
15%	What is the percentage equivalent of 0.523?
52.3%	What is the decimal equivalent of 34.5%?
0.345	What is the decimal equivalent of 42%?
0.42	What is the decimal equivalent of 2%?
0.02	What is the percentage equivalent of 0.424?
42.4%	What is the decimal equivalent of 65%?
0.65	What is the percentage equivalent of 0.72?
72%	What is the decimal equivalent of 100%?
1.00 or 1	What is the decimal equivalent of 30%?
0.30 or 0.3	What is the percentage equivalent of 0.04?
4%	What is the percentage equivalent of 0.11?
11%	What is the decimal equivalent of 62.8%?
0.628	What is the percentage equivalent of 0.27?
27%	What is the percentage equivalent of 0.825?
82.5%	What is the decimal equivalent of 76.1%
0.761	What is the decimal equivalent of 95%?
0.95	What is the percentage equivalent of 0.025?
2.5%	What is the decimal equivalent of 17.5%?
0.175	What is the percentage equivalent of 0.999?
99.9%	What is the decimal equivalent of 1.5%?
0.015	What is the percentage equivalent of 0.301?
30.1%	What is the percentage equivalent of 0.242?

24.2%	What is the percentage equivalent of 0.75?
75%	What is the decimal equivalent of 5%?
0.05	What is the percentage equivalent of 0.85?
85%	What is the percentage equivalent of 0.23?
23%	What is the decimal equivalent of 1%?
0.01	What is the decimal equivalent of 20%?
0.20 or 0.2	What is the percentage equivalent of 0.55?
55%	What is the percentage equivalent of 0.15?
15%	What is the percentage equivalent of 0.523?
52.3%	What is the decimal equivalent of 34.5%?
0.345	What is the decimal equivalent of 42%?
0.42	What is the decimal equivalent of 2%?

0.02	What is the percentage equivalent of 0.424?
42.4%	What is the decimal equivalent of 65%?
0.65	What is the percentage equivalent of 0.72?
72%	What is the decimal equivalent of 100%?
1.00 or 1	What is the decimal equivalent of 30%?
0.30 or 0.3	What is the percentage equivalent of 0.04?
4%	What is the percentage equivalent of 0.11?
11%	What is the decimal equivalent of 62.8%?
0.628	What is the percentage equivalent of 0.27?
27%	What is the percentage equivalent of 0.825?
82.5%	What is the decimal equivalent of 76.1%
0.761	What is the decimal equivalent of 95%?

0.95	What is the percentage equivalent of 0.025?
2.5%	What is the decimal equivalent of 17.5%?
0.175	What is the percentage equivalent of 0.999?
99.9%	What is the decimal equivalent of 1.5%?
0.015	What is the percentage equivalent of 0.301?
30.1%	What is the percentage equivalent of 0.242?

Converting between Fractions, Decimals and Percentages

Lesson 2: Decimals to Percentages

Learning Objective

To develop an understanding of how to convert and write equivalent decimals and percentages.

Targeting Assessment Objective A01

Success Criteria

- To multiply and divide by 100.
- To convert decimals to percentages.
- To convert percentages to decimals.

Quick Maths

Calculate each of the following without a calculator.

1. 45 × 1000 = 45 000	1. 95 ÷ 10 = 9.5	1. 82 ÷ 100 = 0.82
2. 990 × 10 = 9900	2. 485 × 100 = 48 500	2. 79.2 ÷ 1000 = 0.0792
3. 550 ÷ 10 = 55	3. 6.2 × 10 = 62	3. 0.48 × 10 = 4.8
4. 90 ÷ 10 = 9	4. 0.52 × 1000 = 520	4. 0.09 × 100 = 9
5. 8800 ÷ 100 = 88	5. 954 ÷ 100 = 9.54	5. 949.8 ÷ 10 = 94.98
6. 101 × 100 = 10 100	6. 102 ÷ 100 = 1.02	6. 346.5 ÷ 100 = 3.465
7. 646 × 10 = 6460	7. 9.82 × 10 = 98.2	7. 0.091 × 10 = 0.91
8. 1020 ÷ 10 = 102	8. 777 ÷ 1000 = 0.777	8. 4.2987 × 100 = 429.87

Did Someone Say 'Pizza' Again?

Two friends decide to buy a pizza and they see the following offers:

Buy one pizza
and get
35% extra free !

Buy one pizza
and get **0.3** extra free!

Assuming the pizzas are the same size and base price, how would you calculate the best offer?

Converting Decimals to Percentages

Convert 0.84 to a percentage = **84%**

When we convert a decimal to a percentage, we multiply by 100 because percent means 'per cent' or 'per 100'.

Thousands	Hundreds	Tens	Units	Tenths	Hundredths	Thousandths
			0 .	8	4	

We don't need this 0 here.

Converting Decimals to Percentages

Convert 0.04 to a percentage = **4%**

When we convert a decimal to a percentage, we multiply by 100 because percent means 'per cent' or 'per 100'.

Thousands	Hundreds	Tens	Units	Tenths	Hundredths	Thousandths
			0 .	0	4	

We don't need this 0 here...

...or here.

Converting Decimals to Percentages

Convert each decimal to a percentage:

1. 0.55 **55%**
2. 0.42 **42%**
3. 0.05 **5%**
4. 0.68 **68%**
5. 1.24 **124%**

Converting Decimals to Percentages

If we multiply a decimal by 100 when converting it to a percentage, what do you think we could do when converting a percentage to a decimal?

We can divide by 100.

Converting Percentages to Decimals

Convert 23% to a decimal = **0.23**

When we convert a percentage to a decimal, we divide by 100.

Thousands	Hundreds	Tens	Units	Tenths	Hundredths	Thousandths
		2	3	.		

We must make sure we add a zero to the units column as a placeholder.

Converting Percentages to Decimals

Convert 9% to a decimal = 0.09

When we convert a percentage to a decimal, we divide by 100.

Thousands	Hundreds	Tens	Units	Tenths	Hundredths	Thousandths
			9 .	0		

We must add in a zero here...

...and here as a placeholder.

Converting Percentages to Decimals

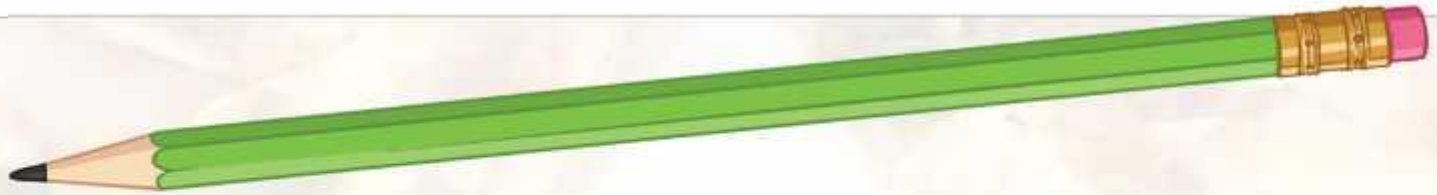
Convert each percentage to a decimal:

1. 88% **0.88**
2. 46% **0.46**
3. 1% **0.01**
4. 30% **0.30 or 0.3**
5. 100% **1.00 or 1**

F.D.P. Grid

F.D.P. Grid

What we want to find out	What we know			
		Fraction	Decimal	Percentage
	Fraction			
	Decimal			Divide by 100
	Percentage		Multiply by 100	



Your Turn

Instructions: Cut out each decimal and percentage and match with its equivalent.

50%	15%
0.10	0.25
0.125	0.75
10%	25%
20%	0.01
0.05	0.15
5%	100%
1%	0.50
12.5%	0.20
75%	1

Converting Decimals and Percentages

Fill in the blank spaces in the table by calculating the equivalent decimal or percentage.

Percentage	Decimal
30%	
	0.88
	0.56
27%	
	0.42
	0.65
45%	
75%	
	0.05

Loop Cards

24.2%	What is the percentage equivalent of 0.75?
23%	What is the decimal equivalent of 1%?
52.3%	What is the decimal equivalent of 34.5%?

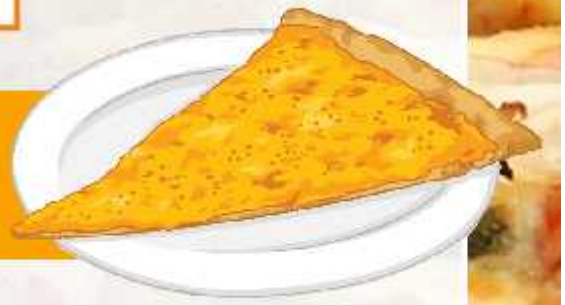
Exit Ticket

Two friends decide to buy a pizza and they see the following offers:

Buy one pizza
and get
35% extra free !

Buy one pizza
and get **0.3** extra free!

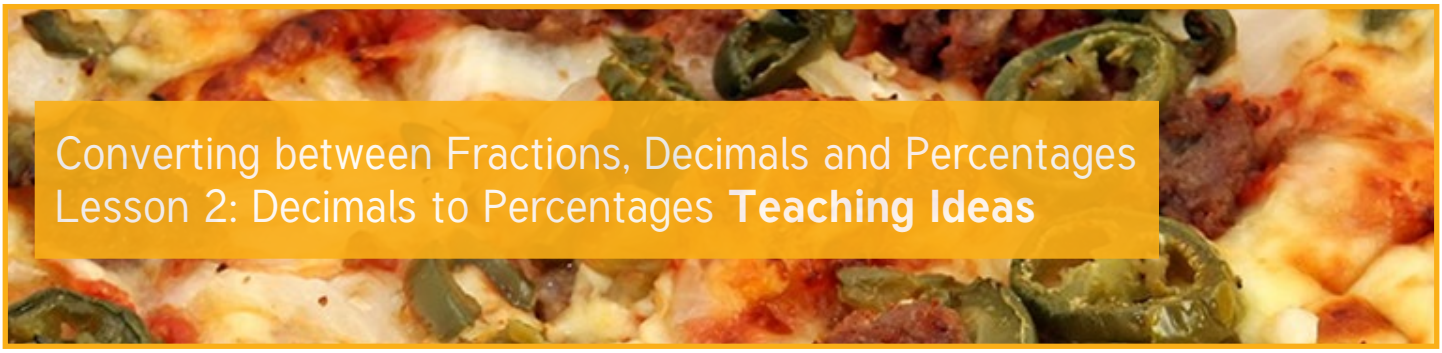
Assuming the pizzas are the same size and base price, how would you calculate the best offer?



To convert 0.3 to a percentage, we multiply it by 100. This gives us 30%.

We know that this is less than 35%, so the first offer is the best.

Equally, we can divide by 100 to work out that 35% is 0.35.



Converting between Fractions, Decimals and Percentages
Lesson 2: Decimals to Percentages **Teaching Ideas**

Learning Objective:	To develop an understanding of how to convert and write equivalent decimals and percentages. Targeting Assessment Objective: A01
Success Criteria:	• To multiply and divide by 100. • To convert decimals to percentages. • To convert percentages to decimals.
Context:	This lesson focuses on converting percentages to decimals and back again. The lesson progresses students' understanding by using and applying the skills reviewed in the prior lesson. Students should have a good understanding of place value, particularly how to multiply and divide by 100.

Starter

Quick Maths

The starter provides an opportunity for students to practise a key skill which is crucial to the lesson: multiplying and dividing numbers by powers of 10. Although the lesson will only use the skill of multiplying and dividing by 100, the starter will still provide a good opportunity for students to apply their understanding of place value. Display the starter for approximately 3 minutes; you may wish for students to complete the activity in their books or on whiteboards. There are three sections, with each one increasing in difficulty. When the activity has run its course, draw the class together and go through the answers.

Main Activities

Did Someone Say 'Pizza' Again?

This slide is used as a continuation from the prior lesson. Display the two pizza offers and allow students up to 1 minute to discuss how they would calculate the best with a partner. No explanation is provided on the slide; the activity is used as an exit ticket at the end of the lesson.

Converting Decimals to Percentages

This sequence of slides explains how to convert decimals to percentages by using a place value chart to multiply by 100. Highlight to students that we multiply by 100 as percentage derives from 'per cent' or 'per 100'. You may also need to clarify with students what happens when they multiply by 100, i.e. moving the digits to the left two spaces.

The final slide here provides an opportunity for students to practise applying the skill. When the answers are revealed, ensure that you ask students to explain how they got their answer to check for a thorough understanding. Ensure that students don't simply respond by saying 'remove the zero' and instead encourage responses which use 'multiply by 100'.

Converting Percentages to Decimals

Display the 'pause for thought' question and encourage pupils to connect their learning to what they have seen in the previous activity by making a link between multiplying and dividing.

Use this sequence of slides in the same way as the previous sequence. As above, you may need to clarify what happens when they divide by 100. Ensure you emphasise the need to add the zeros in the relevant columns as a place holder.

F.D.P Grid

Students can use this grid to help them remember how to convert between fractions, decimals and percentages and is something that can be added to in subsequent lessons. You may wish for students to copy this down into their books or, to save time, you could use the **F.D.P Grids**.

Your Turn

There are two activities available for students to complete: **Converting Decimals and Percentages Card Sort** and **Converting Decimals and Percentages Activity Sheets** (which are differentiated for lower, middle and higher). The **Converting Decimals and Percentages Card Sort** focuses on the percentage and decimal equivalents which need to be recalled quickly and confidently such as 50%, 25%, 75%, 10%. The **Converting Decimals and Percentages Activity Sheets** focus on applying students' understanding to convert any decimal to a percentage and vice versa.

Plenary

Loop Cards

Using the **Converting Decimals and Percentages Loop Cards** is a fun and alternative way to end the lesson. These will need cutting out prior to the start of the lesson. Hand out the cards so that each student has one card; if you have cards left over, students may have more than one. Select a student to begin by reading out their question. All students must listen carefully and say the answer if they have it, followed by the question on the bottom half of their loop card. The aim is to go around the class to the end of the loop cards.

Exit Ticket

To draw the lesson to a close, students can revisit the original pizza question with an **Exit Ticket**. Students are to decide on the best offer and most importantly, justify their decision.

Exit Ticket

Two friends decide to buy a pizza and they see the following offers:

Assuming the pizzas are the same size and base price,
which is the best offer and why?

Exit Ticket

Two friends decide to buy a pizza and they see the following offers:

Assuming the pizzas are the same size and base price,
which is the best offer and why?

Exit Ticket

Two friends decide to buy a pizza and they see the following offers:

Assuming the pizzas are the same size and base price,
which is the best offer and why?

Exit Ticket

Two friends decide to buy a pizza and they see the following offers:

Assuming the pizzas are the same size and base price,
which is the best offer and why?

F.D.P. Grid

What we want to find out	What we know			
		Fraction	Decimal	Percentage
	Fraction			
	Decimal			
	Percentage			

F.D.P. Grid

What we want to find out	What we know			
		Fraction	Decimal	Percentage
	Fraction			
	Decimal			
	Percentage			

F.D.P. Grid

What we want to find out	What we know			
		Fraction	Decimal	Percentage
	Fraction			
	Decimal			
	Percentage			