Name & Surname: _____ Class: _____ Date: _____

# Per Cent Out of 100

Fractions, decimals and percentages

About 45 minutes Level ★★★☆☆

## Per cent means out of 100

The symbol % means **per cent**. Per cent means number of parts per 100.

- 17% = 17 parts out of 100 = $\frac{17}{100}$ = 0.17
- To write % as a decimal, divide by 100: 43% = $\frac{43}{100}$ = 0.43
- To write hundredths as %: 0.06 = $\frac{6}{100}$ = 6%

## Task A

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**Write each number as a fraction with denominator 100, as a decimal and as a percentage.**

| Fraction | Decimal | Percentage |
|---|---|---|
| | | 7% |
| | 0.43 | |
| $\frac{19}{100}$ | | |
| | | 50% |
| | 0.05 | |
| $\frac{3}{10}$ | | |



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# Write It Three Ways

Practise writing percentages as fractions and decimals.

**Key words**

**per cent:** out of 100

**fraction:** a part of a whole, like $\frac{7}{100}$

**hundredth:** one part out of 100

**percentage:** a rate out of 100, with %

**decimal:** a number with tenths and hundredths, like 0.07

## Task B

/10

**Write each percentage as a fraction with denominator 100 and as a decimal.**

### WARM UP

1. Write 7% as a **fraction** with denominator 100.

   Answer: _____

2. Write 7% as a **decimal**.

   Answer: _____

3. Write 36% as a **fraction** with denominator 100.

   Answer: _____

4. Write 36% as a **decimal**.

   Answer: _____

### PRACTISE

5. Write 0.09 as a **fraction** with denominator 100.

   Answer: _____

6. Write 0.09 as a **percentage**.

   Answer: _____

7. Write 0.81 as a **percentage**.

   Answer: _____

### PROBLEM SOLVING

8. 62 squares out of 100 are shaded. What **percentage** is shaded?

   Answer: _____

9. 48 out of 100 children choose apples. Write 48 out of 100 as a **decimal**.

   Answer: _____

10. Explain how you know that 12% = 0.12.

    Answer: _____



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# Spot the Mistake

Find the wrong step and fix it.

**Task C** /4

**Find the wrong step in each working, say what went wrong and give the right answer.**



**Student A**

Write 5% as a fraction with denominator 100 and as a decimal.

1. 1. 5% = $\frac{5}{100}$
2. 2. $\frac{5}{100}$ = 0.5
3. 3. So the answer is $\frac{5}{100}$ and 0.5

**The mistake is in step:** _____

**What went wrong?**

.....

**Correct answer:** _____



**Student B**

Write $\frac{3}{4}$ as a percentage.

1. 1. $\frac{3}{4}$ = $\frac{30}{100}$
2. 2. $\frac{30}{100}$ = 30%
3. 3. So the answer is 30%

**The mistake is in step:** _____

**What went wrong?**

.....

**Correct answer:** _____



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# Fractions to Percentages

Link halves, quarters and fifths to percentages.

**Task D** /10

**Change between fractions, decimals and percentages.**

## WARM UP

**1** Write $\frac{1}{2}$ as a **fraction** with denominator 100.

Answer: _____

**2** Write $\frac{1}{2}$ as a **percentage**.

Answer: _____

**3** Write $\frac{1}{2}$ as a **decimal**.

Answer: _____

## PRACTISE

**4** Write $\frac{1}{4}$ as a **percentage**.

Answer: _____

**5** Write $\frac{3}{4}$ as a **decimal**.

Answer: _____

**6** Write $\frac{1}{5}$ as a **percentage**.

Answer: _____

**7** Write $\frac{1}{5}$ as a **decimal**.

Answer: _____

## PROBLEM SOLVING

**8** $\frac{3}{10}$ of a class walk to school. What **percentage** walk to school?

Answer: _____

**9** A shopkeeper gives £1 off a £4 toy. The discount is $\frac{1}{4}$ of the price. What is the discount as a **percentage**?

Answer: _____

**10** A student says $\frac{2}{5}$ = 25%. Are they right? Explain how you know.

Answer: _____



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# Sort and Shade

Sort values and show fractions on bars.

## Task E

Example done for you

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**Sort each box into the group that means $\frac{1}{5}$.**

● **Means $\frac{1}{5}$**: colour it blue or draw ●  ▲ **Does not mean $\frac{1}{5}$**: colour it orange or draw ▲

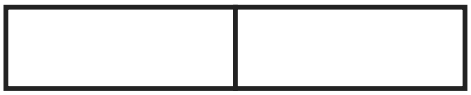
| | | | |
|---|---|---|---|
| 20% ● | $\frac{20}{100}$ | 0.2 | $\frac{2}{10}$ |
| 2% | 0.02 | 25% | 0.5 |

## Task F

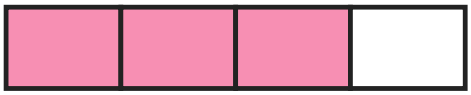
/2

**Shade, name and make equivalents with denominator 100.**

1 Shade $\frac{1}{2}$



2



Fraction shaded: $\frac{\square}{\square}$

## How did I do?

Circle a face for each line.

| | | | |
|---|---|---|---|
| I can explain what per cent means. | ☹ | 😐 | ☺ |
| I can write a percentage as a fraction with denominator 100. | ☹ | 😐 | ☺ |
| I can write a percentage as a decimal. | ☹ | 😐 | ☺ |



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# Answer sheet: Per Cent Out of 100

**Task A**

1. $\frac{7}{100}$ = 0.07 = 7%
2. $\frac{43}{100}$ = 0.43 = 43%
3. $\frac{19}{100}$ = 0.19 = 19%
4. $\frac{1}{2}$ = 0.5 = 50%
5. $\frac{1}{20}$ = 0.05 = 5%
6. $\frac{3}{10}$ = 0.3 = 30%

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**Task B**

1. $\frac{7}{100}$
2. 0.07
3. $\frac{36}{100}$
4. 0.36
5. $\frac{9}{100}$
6. 9%
7. 81%
8. 62%
9. 0.48
10. 12% means 12 out of 100, so $\frac{12}{100}$, which is 0.12.

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**Task C**

1. Step 2 is wrong: They wrote 5 hundredths as 5 tenths. $\frac{5}{100}$ is 0.05, not 0.5. Correct answer: $\frac{5}{100}$ and 0.05
2. Step 1 is wrong: They multiplied top and bottom by 10, but 4 × 10 = 40. To get denominator 100, multiply by 25 to get $\frac{75}{100}$. Correct answer: 75%

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**Task D**

1. $\frac{50}{100}$
2. 50%
3. 0.5
4. 25%
5. 0.75
6. 20%
7. 0.2
8. 30%
9. 25%
10. No, $\frac{2}{5}$ = $\frac{40}{100}$ = 40%, not 25%.

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**Task E**

Means $\frac{1}{5}$ (blue ●): 20%, $\frac{20}{100}$, 0.2, $\frac{2}{10}$

Does not mean $\frac{1}{5}$ (orange ▲): 2%, 0.02, 25%, 0.5

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**Task F**

1. Shade 1 of the 2 equal parts ($\frac{1}{2}$).

2. $\frac{3}{4}$

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