

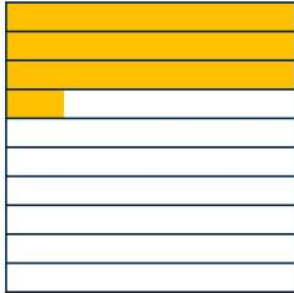
Student sheet – Warm Up Percentages 1

Skills checks

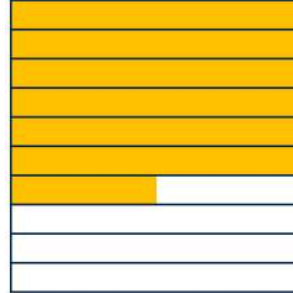
Skills check 1

Which square has 68% of its area shaded? There are 10 rows in each square.

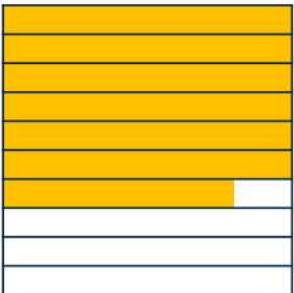
a)



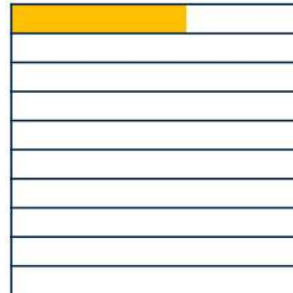
c)



b)



d)



Or other?

Skills check 2

The population of the UK is around 67 million. It is estimated that 28.8 million people in the UK have blue eyes. Calculate the percentage of people in the UK that do **not** have blue eyes.

a) 232%

c) 43%

b) 0.43

d) 57%

Or other?

Skills check 3

A flat bought for £40 000 in 1992 is valued at £85 000 in 2015. What percentage has the value of the flat increased by?

a) 47.1%

c) 112.5%

b) 212.5%

d) 12.5%

Or other?

Skills check 4

The cost of a smartphone was reduced in price by 15%. If the reduced price is £467.50, which calculation could be used to work out the original price?

- a) Original price = 467.5×1.15
- b) Original price = $467.5 \div 1.15$
- c) Original price = 467.5×0.85
- d) Original price = $467.5 \div 0.85$

Or other?

Skills check 5

The formula $C = P \times (1 + i)^n$ is used to calculate the amount of money in a bank account.

P is the amount of money originally put into the bank account.

n is the number of years you leave the money in the account.

i is the rate of interest as a decimal.

C is the amount of money you have in the account at the end of n years.

Which of the below would be used if interest rate was 4%?

- a) $C = P \times (1 + 4)^n$
- b) $C = P \times (1 + 0.04)^n$
- c) $C = P \times (1 + 0.4)^n$
- d) $C = P \times (1 + 0.004)^n$

Or other?

Activities

Activity 1: Employment statistics

From June 2022 to August 2022 the unemployment rate of those aged 16 and over in the UK was **3.6%**.

- a) Explain to the person next to you what the unemployment rate means.
- b) Write the unemployment rate as a decimal.
- c) Write the unemployment rate as a fraction.
- d) The whole bar represents those aged 16 and over in the UK. The shading represents those unemployed. Which is correct?



From June 2022 to August 2022 the unemployment rate of those aged 16 and over in the UK was 3.6%.

The population estimate for those aged 16 or over in the UK in 2022 was 55 190 347.

Which of the calculations could be used to work out the number of people aged 16 and over in the UK who were unemployed from June 2022 to August 2022?

a) $0.36 \times 55\,190\,347$

b) $0.036 \times 55\,190\,347$

c) $\frac{36}{100} \times 55\,190\,347$

d) $\frac{55\,190\,347}{100} \times 3.6$

e) $\frac{36}{1000} \times 55\,190\,347$

f) $\frac{3.6}{100} \times 55\,190\,347$

By choosing a correct and efficient calculation from the above, use your calculator to work out how many people aged 16 or over were unemployed from June 2022 to August 2022.

Activity 2: Student living

Below is a bar model that represents the total expenditure, separated into the different categories of expenditure.

a) What do you notice? What do you wonder?



b) Can you label each section of the bar model?

c) What might the additional section of the bar model represent?

Ellie is in her first year of University. She receives a yearly maintenance loan of £9498. Her average monthly expenditure is £1078.

a) Can Ellie afford her current average monthly expenditure with her maintenance loan? Convince the person sitting next to you.

b) How much more does Ellie need on average per month to afford her currently monthly expenditure?

c) What are Ellie's options for affording her monthly spending?

The difference as a proportion of the monthly loan is than as a proportion of the monthly expenditure, because the monthly loan is as a whole.

Therefore, the percentage you get from finding the difference out of the monthly loan is than the percentage you get from finding the difference out of the monthly expenditure.

For Ellie to be able to continue, she either needs to increase her average monthly income or decrease her average monthly expenditure.

a) **By what percentage** would Ellie need to **increase** her average monthly income?

b) **By what percentage** would Ellie need to **decrease** her average monthly expenditure?

For the academic year 2024/25, the student maintenance loan rose by 2.5% compared to the previous year.

a) What is the multiplier for an increase of 2.5%?

The maximum student maintenance loan for the academic year 2024/25 is £13 348.

b) What was the maximum student maintenance loan for 2023/24 to the nearest £?