04 - Percentages - Question Pack

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This question pack is part of a series of Numerical Reasoning Test (NRT) preparation resources which you can find at www.numericalreasoningtestsuccess.com.

These resources are organised into a number of different topics. For each topic, there is a set of notes and a question pack (such as this one).

Each set of notes explains a set of skills, with example questions for each one. Within the question pack for the same topic, you can find practice questions (with answers) for each of these skills.

I advise that you work through the sets of notes in order. Within each set of notes, start by reading the explanation of the first skill. Then go to that skill in the question pack and complete the practice questions. Only once you have mastered a skill should you move onto the next one. And only once you have mastered all the skills in a set of notes should you move on to the next set of notes. This approach is called *mastery learning*.

If you find any errors in this document (including mathematical errors, typos or any other mistakes), please let me know at contact@numericalreasoningtestsuccess.com.

Questions

You may use a calculator.

The answers can be found at the end of this document.

Convert between percentages and decimals.

1) What is 34% as a decimal?

2) Convert 7.04% to a decimal.

3) What is 0.63 as a percentage?

4) Convert 4.703 to a percentage.

5) What is 0.1% as a decimal?

Convert between percentages and fractions.

1) What is 20% as a fraction?

2) What is $\frac{7}{4}$ as a percentage?

3) Convert 64% to a fraction.

4) What is 0.5% as a fraction?

5) Convert $\frac{5}{8}$ to a percentage.

Find a given percentage of a given amount.

1) What is 9% of 452?

2) Find 140% of 3,512.

3) What is 900% of 2?

4) What is 58.3% of 1,203,000?

5) What is 80% of 35?

Calculate what percentage a given amount is of another given amount.

1) What percentage of 300 is 15?

2) What is 78 as a percentage of 65?

3) What percentage of 170 is 127.5?

4) What is 32,220 as a percentage of 89,500?

5) What percentage of 25 is 60?

Given an amount and what percentage it is of another amount, calculate the other amount.

1) 93% of an amount is 1,116. What is the amount?

2) 130% of an amount is 75.4. What is the amount?

3) 2,187 is 27% of another amount. What is the other amount?

4) 60% of an amount is 105. What is the amount?

5) 6,935 is 7.3% of another amount. What is the other amount?

Calculate percentage increase or decrease.

1) The number of microphones sold by an audio equipment company was 2,603 in 2019 and 2,952 in 2020. What was the percentage increase in the number of microphones sold between these two year?

2) In 2010, there were 541,400 nurses in the UK. In 2020, there were 669,600. What was the percentage increase between these two years?

3) In March 2011, there were 335,000 hectares of woodland in the UK. In March 2021, there were 316,000 hectares. What was the percentage decrease in UK woodland area between March 2011 and March 2021?

4) A clothing company had 38 stores in 2005. By 2020, they had 46 stores. What was the percentage increase in the company's number of stores between these two years?

5) A council's budget was £1,342,000,000 in 2010 and £1,037,000,000 in 2020. What was the percentage change in the budget over these years? State whether it was an increase or decrease?

Given the initial value and the percentage increase or decrease, calculate the final value.

1) A company's turnover decreased by 21% between the 2018/19 financial year and the 2019/20 financial year. If the turnover in 2018/19 was £389,500, what was the turnover in 2019/20?

2) On Alex's 10th birthday, she was 138cm tall. By her 11th birthday, her height had increased by 5%. How tall was Alex on her 11th birthday?

3) The world human population is estimated to have been 275,000,000 in the year 1000. By the year 2000, this had increased by 2134%. What was the estimated world human population in the year 2000?

4) In 1979, there were 6,352 road deaths in Great Britain. The number in 2019 was 72.42% lower. How many road deaths were there in Great Britain in 2019? Round your answer to the nearest whole number.

5) A herd of deer increased in number by 20% over the course of a year. If there were 85 deer in the herd at the start of the year, how many were there at the end of the year?

Given the final value and the percentage increase or decrease, calculate the initial value.

1) The number of musicians in an orchestra has grown by 80% over the last 5 years. If there are 135 musicians in the orchestra today, how many were there 5 years ago?

2) In September 2021, the average rental price for a new tenancy in the UK was £1,061 per calendar month, which was a 7.5% increase compared to September 2020. What was the average rental price for a new tenancy in the UK in September 2020? Round your answer to the nearest pound.

3) Human life expectancy in 2019 was 72.6 years. This was 126.875% higher than in 1900. What was human life expectancy in 1900?

4) In the 2019/20 financial year, median disposable household income in the UK was £29,897. This was 0.11% lower than in the 2018/19 financial year. What was the median disposable household income in the UK in the 2018/19 financial year? Round your answer to the nearest pound.

5) The number of fish in a lake has decreased by 15% over the past six years. If there are 340 fish in the lake today, how many were there 6 years ago?

Answers

Convert between percentages and decimals.

1. 0.34

2. 0.0704

3. 63%

4. 470.3%

5. 0.001

Convert between percentages and fractions.

1. $\frac{1}{5}$

2. 175%

3. $\frac{16}{25}$

4. $\frac{1}{200}$

5. 62.5%

Find a given percentage of a given amount.

1. 40.68

2. 4,916.8

3. 18

4. 701,349

5. 28

Calculate what percentage a given amount is of another given amount.

1. 5%

2. 120%

3. 75%

4. 36%

5. 240%

Given an amount and what percentage it is of another amount, calculate the other amount.

1. 1,200

2. 58

3. 8,100

4. 175

5. 95,000

Calculate percentage increase or decrease.

1. 13.4%

2. 23.67934983%

3. 5.671641791%

4. 21.0526316%

5. A decrease of 22.72727273%

Given the initial value and the percentage increase or decrease, calculate the final value.

1. £307,705

2. 144.9cm

3. 6,143,500,000

4. 1752

5. 102

Given the final value and the percentage increase or decrease, calculate the initial value.

1. 75

2. £987

3. 32

4. £29,930

5. 400