

GCSE Maths: One quantity as a percentage of another (Higher): answers

GCSE Maths - Percentages - Higher - Lesson 5.3

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch05-percentages/higher/one-quantity-as-a-percentage-of-another/

Exercise 5D One quantity as a percentage of another (non-calculator) Non-calculator

1 Write the first number as a percentage of the second. Do not use a calculator.

(a) 9 out of 20

Answer: 45%

(b) 12 out of 50

Answer: 24%

(c) 18 out of 25

Answer: 72%

(d) 3 out of 4

Answer: 75%

(e) 30 out of 200

Answer: 15%

(f) 7 out of 10

Answer: 70%

2 Write the first number as a percentage of the second. You will need to divide.

(a) 21 out of 60

Answer: 35%

(b) 45 out of 120

Answer: 37.5%

(c) 9 out of 40

Answer: 22.5%

(d) 66 out of 120

Answer: 55%

3 Change to the same units first, then write the first amount as a percentage of the second.

(a) 30 cm out of 2 m

Answer: 15%

(b) 45 minutes out of 3 hours

Answer: 25%

(c) 60p out of £2.40

Answer: 25%

(d) 250 g out of 2 kg

Answer: 12.5%

(e) 600 m out of 2.4 km

Answer: 25%

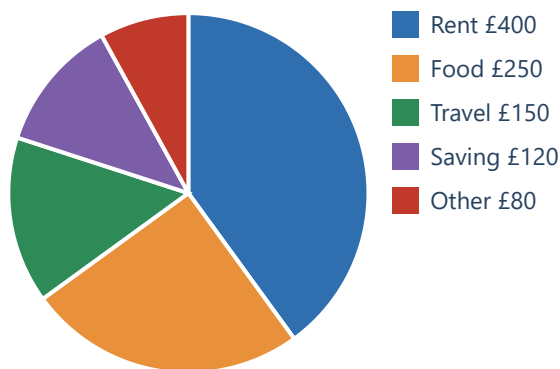
(f) 15 seconds out of 1 minute

Answer: 25%

4 A bag has 40 counters. 14 of them are red. What percentage of the counters are red?

Answer: 35%

5 The pie chart shows how Dan spends his £1,000 monthly pay. Work out the percentage he spends on each.



(a) Rent (£400)

Answer: 40%

(b) Food (£250)

Answer: 25%

(c) Travel (£150)

Answer: 15%

(d) Saving (£120)

Answer: 12%

(e) Other (£80)

Answer: 8%

6 A netball team played 32 matches and won 24 of them. What percentage did they win?

Answer: 75%

- 7 Rhys scored 36 out of 50 in a maths test and 52 out of 80 in a science test. In which test did he do better? Show your working.

Answer: maths (72% and 65%)

- 8 Tom says, "8 out of 20 is 8%, because the top number is 8." Explain his mistake and write 8 out of 20 as a percentage.

Answer: 40%

- 9 At Shop A, 18 out of 24 customers said they were satisfied. At Shop B, 27 out of 36 said they were satisfied. Is one shop better than the other? Give a reason.

Answer: No. Both are 75%

- 10 The price of a phone rose from £400 to £500. Write the new price as a percentage of the old price.

Answer: 125%

- 11 A is 40% of B. B is 25% of C. Write A as a percentage of C.

Answer: 10%

- 12 (a) Write 45 as a percentage of 36. (b) Write 36 as a percentage of 45. (c) Explain why your answers are different.

Answer: (a) 125% (b) 80% (c) the whole is different

Exercise 5E One quantity as a percentage of another (calculator)

Calculator allowed

- 1 Write the first number as a percentage of the second. Give your answers to 1 decimal place where necessary.

- (a) 17 out of 45

Answer: 37.8%

- (b) 23 out of 36

Answer: 63.9%

- (c) 5 out of 7

Answer: 71.4%

- (d) 129 out of 150

Answer: 86%

- (e) 8 out of 13

Answer: 61.5%

- (f) 345 out of 420

Answer: 82.1%

- 2 In a survey of 240 people, 91 said they prefer cats to dogs. What percentage prefer cats? Give your answer to 1 decimal place.

Answer: 37.9%

- 3 A bag holds 750 g of flour. A baker uses 285 g. What percentage of the flour does the baker use?

Answer: 38%

- 4 The population of a town rises from 48,500 to 52,310. Write the new population as a percentage of the old population. Give your answer to 1 decimal place.

Answer: 107.9%

- 5 A runner completes 7.5 km of a 12 km charity route. What percentage of the route has the runner completed?

Answer: 62.5%

- 6 Amy scored 68 out of 85 in a quiz. Ben scored 74 out of 95 in a harder quiz. Who got the higher percentage? Show your working.

Answer: Amy (80% and 77.9%)

- 7 Ella scored 14 goals from 22 shots. Fatima scored 19 goals from 30 shots. Who has the better shooting record? Show your working.

Answer: Ella (63.6% and 63.3%)

- 8 Lena scored 134 marks out of 200. The pass mark is 65%. Did Lena pass? Explain.

Answer: Yes: Lena got 67%, which is above 65%

- 9 A company has an income of £1.2 million. Its profit is £84,000. Write the profit as a percentage of the income.

Answer: 7%

- 10 The table shows how many students passed a test in three classes. Put the classes in order, highest pass rate first.

Class	Passed	Students
A	13	20
B	20	32
C	17	25

Answer: C (68%), A (65%), B (62.5%)

- 11 Sales last year were £28,000. Sales this year are £35,000. Write this year's sales as a percentage of last year's sales.

Answer: 125%

- 12 Write each as a percentage.

(a) 0.35 out of 1.4

Answer: 25%

(b) 7.2 out of 4.5

Answer: 160%

- 13 Chen says, "A percentage of something can never be more than 100%." Is he right? Use an example to explain.

Answer: No. e.g. 30 is 150% of 20

