Crude birth and death rates

Grade 5 | Worked solutions

GCSE Statistics topic practice

1 In 2024 a town had a population of 25 000. There were 300 deaths in the town that year.

a. Work out the crude death rate for the town in 2024. (2)

b. Explain what your answer to part (a) means. (1)

(3 marks)

a)

Crude rate = number of deaths ÷ population × 1000

$$\frac{300}{25000} \times 1000 = 12$$

b)

For every 1000 people in the town, there were 12 deaths in 2024.

a) 12 per thousand b) 12 deaths for every 1000 people

2 The table gives information about a village and a town in 2025.

	Population	Number of births
Village	8000	104
Town	60 000	690

a. Work out the crude birth rate for the village and the crude birth rate for the town. (3)

b. A reporter says, "The town had far more births, so it has the higher birth rate." Is the reporter correct? Give a reason for your answer. (1)

(4 marks)

a)

Crude rate = number of births ÷ population × 1000

$$\text{Village} = \frac{104}{8000} \times 1000$$

$$= 13$$

$$\text{Town} = \frac{690}{60000} \times 1000$$

$$= 11.5$$

b)

No. The village has the higher rate (13 > 11.5). The town has more births only because it has many more people.

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a) village 13, town 11.5 b) no, village is higher

3 In 2025, Town A had a population of 48 000. There were 600 births in Town A that year.

a. Work out the crude birth rate for Town A in 2025. (2)

b. In 2025, Town B had a population of 30 000 and a crude death rate of 11.5 per thousand. Work out the number of deaths in Town B in 2025. (2)

c. The crude death rate for Town A in 2025 was 9 per thousand. Give one possible reason why the crude death rate is higher in Town B than in Town A. (1)

(5 marks)

a)

Crude rate = number of births ÷ population × 1000

$$\frac{600}{48000} \times 1000 = 12.5$$

b)

11.5 deaths for every 1000 people

$30000 \div 1000 = 30$

$11.5 \times 30 = 345$

c)

Town B may have a higher proportion of older people than Town A.

a) 12.5 per thousand b) 345 c) B has more older people

4 In 2025 a city had a crude death rate of 8.4 per thousand. There were 2310 deaths in the city that year.

a. Work out the population of the city in 2025. (2)

b. There were 3575 births in the city in 2025. Work out the crude birth rate. (1)

c. Using only the births and deaths, work out the change in the population of the city during 2025. (1)

(4 marks)

a)

8.4 deaths for every 1000 people

$2310 \div 8.4 = 275$

So there are 275 lots of 1000 people

$275 \times 1000 = 275000$

The population is 275000

b)

$$\frac{3575}{275000} \times 1000 = 13$$

13 births for every 1000 people

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c)

3575 − 2310 = 1265

There were more births than deaths,

so the population went up by 1265.

a) 275000 b) 13 per thousand c) up by 1265

5 The table gives information about a town in 2015 and in 2025.

Year	Population	Crude birth rate (per thousand)	Number of births
2015	52 000	15	
2025	65 000		715

a. Work out the number of births in the town in 2015. (2)

b. Work out the crude birth rate for the town in 2025. (2)

c. There were fewer births in 2025 than in 2015, but the population of the town went up. Give one possible reason why the population went up. (1)

(5 marks)

a)

15 births for every 1000 people

52000 ÷ 1000 = 52

15 × 52 = 780

There were 780 births in 2015

b)

$$\frac{715}{65000} \times 1000 = 11$$

c)

More people may have moved into the town

than moved out of it.

a) 780 b) 11 per thousand c) people moving into the town

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