

Name:

Exam Style Questions

## Population Density



Corbettmaths

Equipment needed: Calculator, pen

### Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

### Video Tutorial

[www.corbettmaths.com/contents](http://www.corbettmaths.com/contents)

Video 384a



### Answers and Video Solutions



1. Maria says that "Population density is found by dividing area by the population."



Do you agree? Explain why.

No, population density is found by dividing population by area.

(2)

2. 800 people live in a village.  
The area of the village is 10km<sup>2</sup>



Work out the population density of the village

$$800 \div 10 = 80$$

.....80.....people per km<sup>2</sup>  
(2)

3. The population of birds on an island is 3200  
The population density of birds on the island is 200 per km<sup>2</sup>



Work out the area of the island.

$$3200 \div 200 = 16$$

.....16.....km<sup>2</sup>  
(2)

4. The population density of a housing estate is 900 people per km<sup>2</sup>  
The area of the housing estate is 3km<sup>2</sup>



Work out the population of the housing estate.

$$900 \times 3 = 2700$$

..... 2700 people per km<sup>2</sup>  
(2)

5. The population of a country is 380,000  
The country's population density is 9 per square mile.



Work out the area of the country.  
Give your answer in square miles.

$$380000 \div 9 = 42222.2$$

..... 42222.2 square miles to 1dp.  
(2)

6. The area of County Durham is 2720km<sup>2</sup>  
The population density of County Durham in 2021 was 318.6 per km<sup>2</sup>



Work out the population of County Durham in 2021

$$2720 \times 318.6 = 866592$$

..... 866592  
(2)

7. The population of a city is 496784  
The area of the city is 43.17 square miles



Work out the population density of the city.  
Give your answer to 1 decimal place.

$$496784 \div 43.17$$

11507.6  
.....people per square mile  
(2)

8. Shown below is information about Australia and New Zealand in 2022.



|            | Australia                | New Zealand            |
|------------|--------------------------|------------------------|
| Area       | 7,620,000km <sup>2</sup> | 268,000km <sup>2</sup> |
| Population | 26,000,000               | 5,200,000              |

Danny says that the population density of Australia is 5 times greater than the population density of New Zealand.

Is Danny correct?  
Explain your answer.

Australia  $26000000 \div 7620000 = 3.412$  per km<sup>2</sup>  
NZ  $5200000 \div 268000 = 19.40299$  per km<sup>2</sup>

No, the population density of New Zealand is 5.687 times greater than the population density of Australia.

(4)

9. Last year, the population of an island was 8000.



The population density was 1.6 people per km<sup>2</sup>

This year, the population density has decreased to 1.57

(a) Work out how fewer people live on the island this year.

$$8000 \div 1.6 = 5000 \text{ km}^2$$

$$5000 \times 1.57 = 7850$$

150

(3)

(b) Give an assumption that you have made in part (a)

The area of the island remained the same.

(1)

10. A county is made up of two regions, A and B.



Region A has a population of 58000 and a population density of 480 people per km<sup>2</sup>

Region B has a population density of 125 people per km<sup>2</sup> and an area of 220 km<sup>2</sup>

Work out the population density for the county.

Region A       $58000 \div 480 = 120.8\dot{3} \text{ km}^2$

Region B       $220 \times 125 = 27500 \text{ people}$

$$27500 + 58000 = 85500$$

$$220 + 120.8\dot{3} = 340.8\dot{3} \text{ km}^2$$

$$85500 \div 340.8\dot{3} = 250.856 \text{ per km}^2$$

250.856  
.....people per km<sup>2</sup>  
(4)

11. The population of a country is  $2.4 \times 10^6$



The area of the country is  $2.5 \times 10^4 \text{ km}^2$

Work out the population density of the country.

$$(2.4 \times 10^6) \div (2.5 \times 10^4)$$

96  
.....people per km<sup>2</sup>  
(4)

12. The table shows information about the areas of two counties, A and B.



|      | County A             | County B             |
|------|----------------------|----------------------|
| Area | 2,000km <sup>2</sup> | 2,500km <sup>2</sup> |

The population of County A : population of County B = 2 : 1

Work out the population density of County A : the population density of County B

let

$$\text{Population of A} = 2x$$

$$\text{Population of B} = x$$

$$\frac{2x}{2000} : \frac{x}{2500}$$

$$\frac{x}{1000} : \frac{x}{2500}$$

$$\frac{1}{1000} : \frac{1}{2500}$$

$$\times 2500 \quad \frac{2500}{1000} : \frac{2500}{2500}$$

$$2.5 : 1$$

or

$$5 : 2$$

$$\begin{array}{r} 5 : 2 \\ \hline \text{or } (4) \\ 2.5 : 1 \end{array}$$