



UKCAT Mini-Mock Exam 2

SECTION 2

QUANTITATIVE REASONING

10 Minutes

Instructions to Candidates

You have 1 minute to read these instructions.

You will be presented with questions that most often refer to charts and graphs containing data. Additional information may also be found within the question itself.

You may use a calculator.

It is in your best interest to answer all items as there is no penalty for guessing. All unanswered items will be scored as incorrect.

This section consists of 5 sets, each with 4 questions

1. Cycling

Mark cycles from his house to Brighton in 2 hours, 15 minutes. He had three 5 minute rests. When he left, the reading on his odometer was 1086 miles. When he arrived, the reading on his odometer was 1108 miles.

- 1 km = 0.6124 miles

1. What was Mark's average speed whilst cycling?

- A. 5.5 mph
- B. 8.8 mph
- C. 9.8 mph
- D. 11 mph
- E. 22 mph

2. How many kilometres has Mark's bike done when he arrives in Brighton?

- A. 35.4 km
- B. 688.5 km
- C. 1747.7 km
- D. 1772.8 km
- E. 1783.1 km

3. Mark can do the same journey in 38 minutes by car. How much faster is Mark's average driving speed compared to his average cycling speed?

- A. 17.9 mph
- B. 22.1 mph
- C. 23.7 mph
- D. 24.9 mph
- E. 38.2 mph

4. When he bought the bike, it had 483 miles on the odometer. Steve borrowed Mark's bike twice to cycle to and from work. Steve lives 6 miles from work. Mark has not lent the bike to anyone else. What is the total number of miles Mark has ridden on his bike since owning it when he arrives in Brighton?

- A. 579 miles
- B. 601 miles
- C. 613 miles
- D. 619 miles
- E. 625 miles

2. GP surgery

A company is employed to collect blood samples from local GP surgeries and deliver them to the hospital laboratory. The table below shows the number of surgeries at certain distances from the hospital. Each GP surgery serves on average 12,000 patients.

Distance From Hospital (km)	Number of GP Surgeries
<5	15
5-9	5
10-14	23
15-19	11
>20	8

5. How many surgeries does the company collect samples from?

- A. 15
- B. 54
- C. 62
- D. 68
- E. Can't tell

6. Estimate how many people are registered with a GP within 5 km of the hospital.

- A. 120,000
- B. 180,000
- C. 205,000
- D. 744,000
- E. Can't tell

7. Calculate the population within 25 km.

- A. 498,000
- B. 500,000
- C. 620,000
- D. 744,000
- E. Can't tell

8. 12 km from the hospital is a city of 120,000 people. What is the approximate population (registered with a GP) that lives 10-14 km away from the hospital but not in the city?

- A. 0
- B. 83,000
- C. 156,000
- D. 264,000
- E. 276,000

3. Sailing Boat

Colin owns a sailing boat. He decides to sail from Holetown to Point Lebacca.

One knot is equal to one nautical mile per hour. One nautical mile is equal to 1852m. Assume that he sails in a straight line from point to point and is unaffected by tides.

9. He sets sail at 1000 hrs from Holetown and sails across the bay directly towards Point Lebacca, initially at a speed of 6 knots. He covers a distance of 3 nautical miles. The wind then picks up and he travels 5 nautical miles at a speed of 10 knots and arrives at Point Lebacca. At what time did he arrive?

- A. 1100 hrs
- B. 1200 hrs
- C. 1230 hrs
- D. 1300 hrs
- E. 1330 hrs

10. When he arrives at Point Lebacca he drops anchor and has lunch for one and a half hours. The wind picks up even more and he is able to sail straight back to Holetown at an average speed of 12 knots. At what time does he arrive back?

- A. 1140 hrs
- B. 1240 hrs
- C. 1310 hrs
- D. 1340 hrs
- E. 1410 hrs

11. How many kilometres is it to sail directly from Holetown to Point Lebacca and back?

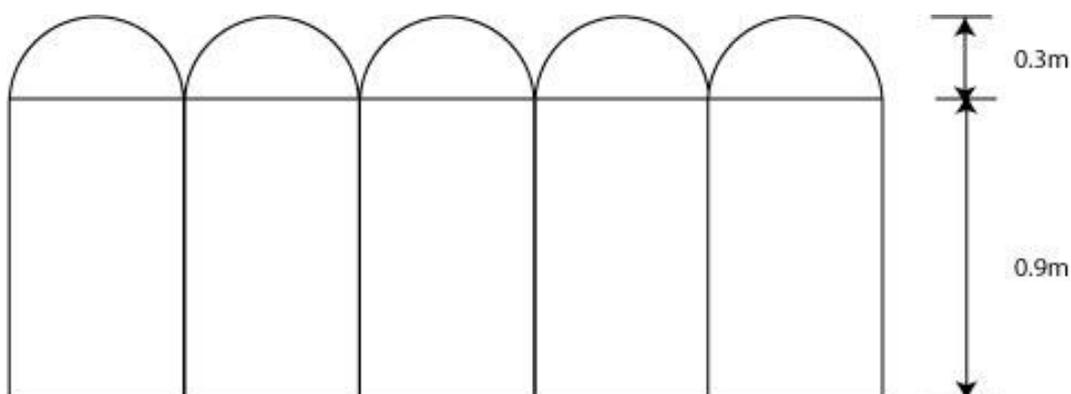
- A. 8.0 km
- B. 14.816 km
- C. 18.520km
- D. 29.632 km
- E. 35.882 km

12. By using the motor Colin can add an extra 6.4 knots to his average speed. Had he used his motor on this trip from Holetown to Point Lebacca, how long would the journey there and back have taken him?

- A. 48 minutes
- B. 1 hour
- C. 1 hour and 8 minutes
- D. 1 hour 23 minutes
- E. 2 hours and 40 minutes

4. Fence Painting

Mrs Gleason needs to repaint her fence. She has found a colour of paint that she likes but the cost of this is much higher than an ordinary white-wash so she has decided to start with a short section of fence - the dimensions and size of which is given below. The decorating panels along the top of the fence are perfect semicircles with a radius of 0.3m.



Use Pi to 5 decimal figures: 3.14159

13. What is the total area of semi-circular fence decoration only that Mrs Gleason needs to paint?

- A. 0.71 m^2
- B. 0.94 m^2
- C. 1.41 m^2
- D. 2.06 m^2
- E. 3.41 m^2

14. What is the total area of the main fence panelling (not including the semi-circular decorative panelling) that Mrs Gleason needs to paint?

- A. 0.27 m^2
- B. 0.54 m^2
- C. 1.35 m^2
- D. 2.70 m^2
- E. 3.41 m^2

15. What is the total area of the entire fence that Mrs Gleason needs to paint?

- A. 3.41 m^2
- B. 3.64 m^2
- C. 4.11 m^2
- D. 4.58 m^2
- E. 12.12 m^2

16. Mrs Gleason particularly likes Modson's purple hue and wishes to paint her fence in this colour. The paint only comes in 1.5 litre pots and 1 litre covers approximately 10m^2 . How much paint is she going to have left over?

- A. 0.10 L
- B. 0.34 L
- C. 0.78 L
- D. 0.99 L
- E. 1.30 L

5. **The Wedding Kitchen Company**

Below are the charges made by the Wedding Kitchen Company for catering at a wedding:

Transport (per wedding)

Within 5 miles	5.1-10 miles	10.1 - 20 miles
£100	£150	£180

Staff (per night)

Chef	£200
Other Kitchen Staff	£300
Waiting Staff	£200

Menu (per cover)

Beef	£4.72
Lamb	£5.21
Vegetarian	£2.89

17. Alice and Raj are getting married and have invited 140 guests for one night. They estimate that about 10% will be vegetarian and the remainder will split 50/50 between beef and lamb. What will their estimated bill be for the menu alone?

- A. £350.28
- B. £528.39
- C. £601.96
- D. £666.05
- E. £708.90

18. Alice and Raj can't decide between two different venues. One is 3 miles from the caterers, the other 17 miles. They hope to have the staff for Saturday night only. By choosing the closer venue, how many extra guests could they have without spending any more, assuming all the extra guests were to choose lamb?

- A. 0
- B. 8
- C. 15
- D. 16
- E. None of the above

After getting all of the replies to their invites, the final numbers are:

Beef: 58 covers

Lamb: 62 covers

Vegetarian: 9 covers

19. They decided to go for the further venue in the end (17 miles from the caterer). What is their final bill going to be?

- A. £1089.65
- B. £1502.79
- C. £1990.29
- D. £2508.42
- E. £3384.01

20. What would be the difference in price between a wedding with all 100 guests vegetarian, compared to a wedding with all 100 guests choosing lamb (assuming all other costs are the same)?

- A. £211
- B. £217
- C. £232
- D. £302
- E. £521