

# KENYA NATIONAL PREDICTION TESTS

# KCPE

## MATHEMATICS

Time: 2 hours

### INSTRUCTIONS TO CANDIDATES (Please read these instructions carefully)

1. You have been given this question booklet and a separate answer sheet. The question booklet contains 50 questions.
2. Do any necessary rough work in this booklet.
3. When you have chosen your answer, mark it on the **ANSWER SHEET**, not in this question booklet.

### HOW TO USE THE ANSWER SHEET

4. Use only an ordinary pencil.
5. Make sure that you have written on the answer sheet:

**YOUR INDEX NUMBER**

**YOUR NAME**

**NAME OF YOUR SCHOOL**

6. By drawing a **dark line** inside the correct numbered boxes mark your full Index Number (i.e. School Code Number and the three-figure Candidate's Number) in the grid near the top of the answer sheet.
7. Do not make any marks outside the boxes.
8. Keep the sheet as clean as possible and do not fold it.
9. For each of the questions 1-50 four answers are given. The answers are lettered A, B, C and D. In each case only **ONE** of the four answers is correct. Choose the correct answer
10. On the answer sheet, show the correct answer by drawing a **dark line** inside the box in which the letter you have chosen is written.

### Example

#### In the Question Booklet.

35. The following are factors of sixteen. Which one is the odd one out?

- A. 16
- B. 1
- C. 8
- D. 3

⌈ A ⌋ ⌈ B ⌋ ⌈ C ⌋ ⌈ D ⌋    ⌈ A ⌋ ⌈ B ⌋ ⌈ C ⌋ ⌈ D ⌋    ⌈ A ⌋ ⌈ B ⌋ ⌈ C ⌋ ⌈ D ⌋    ⌈ A ⌋ ⌈ B ⌋ ⌈ C ⌋ ⌈ D ⌋    ⌈ A ⌋ ⌈ B ⌋ ⌈ C ⌋ ⌈ D ⌋

### On the answer sheet:

In the set of boxes numbered 35, the box with the letter **D** printed in it is marked

11. Your **dark line** **MUST** be within the box.
12. For each question **ONLY ONE** box is to be marked in each set of four boxes.

This question paper consists of 8 printed pages.

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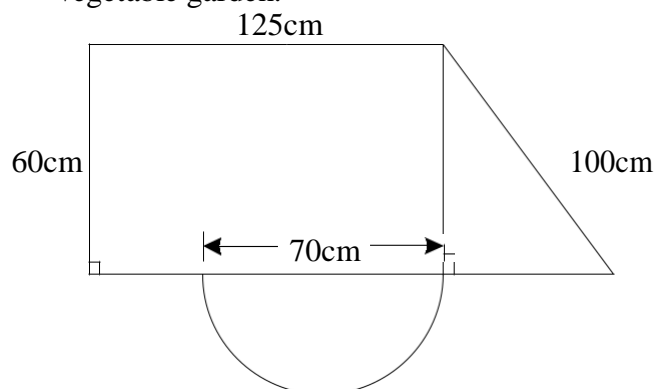
**TURN OVER**

- What is 28808088.808 in words?
  - Twenty eight million eighty eight thousand eight hundred and eighty thousand and eight hundredths
  - Twenty eight million eight hundred and eight thousand eight hundred eighty eight thousandths
  - Twenty eight million eighty eight thousand and eight and eighty eight hundredths
  - Twenty eight million eight hundred and eight thousand and eighty eight and eight hundred and eight thousandths
- What is the value of  $56 + \frac{6}{2} - 72 \div 9 \times 3 + 8$ ?
  - $\frac{2}{3}$
  - 4
  - 18
  - 22
- What is the place value of digit 5 obtained after working out the division of 0.2448 by 48?
  - Tenths
  - Hundredths
  - Thousandths
  - Ten thousandths
- What is the product of the square root of 0.0625 and the square of 1.7?
  - 0.425
  - 1.445
  - 0.7225
  - 0.10625
- In a certain constituency by-election, three candidates contested for a seat. The winner got 7508 votes. This was 758 votes more than the second candidate. The third candidate got 1200 votes less than the second candidate. If 205 votes were spoilt, how many people cast their votes?
  - 19803
  - 19808
  - 20013
  - 22287
- The GCD of two numbers is 12 and their LCM is 180. If one of the numbers is 60, find the other number.
  - 15
  - 36
  - 72
  - 720

- What is the value of  $x$  in

$$\frac{2}{3}x + \frac{3(2x-3)}{4} = 5$$

- $3\overline{26}_3$
  - $1\overline{13}_3$
  - $9\overline{26}_7$
  - $1\overline{26}$
- Mama mboga bought 120 pineapples for sh 4800. She spent 300 on transport. During transportation, 20 of the pineapples got spoilt. She later sold the remaining pineapples at sh 22.50 each. What was her percentage loss or profit?
    - Profit, 62  $\frac{1}{2}$  %
    - Loss, 37  $\frac{1}{2}$  %
    - Profit, 50%
    - Loss, 50%
  - The diagram below represents a vegetable garden.



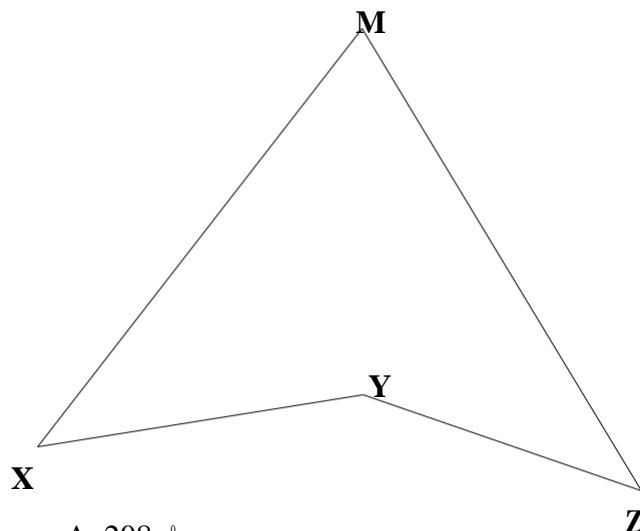
What is the distance round the garden?

(Take  $\pi = \frac{22}{7}$ )

- 355m
  - 640m
  - 450m
  - 530m
- A road measures 6.3cm on a map. What is the drawing scale if the actual length is 12.6km?
    - 1:10000
    - 1:20000
    - 1:100000
    - 1:200000

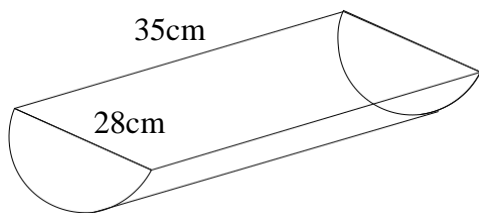
11. A rectangular water tank measures 2.6m by 2m by 1.5m. If 75 litres of water are drawn from the tank daily, how many days will the tank take to be empty?
- A. 7.8  
B. 104  
C. 1040  
D. 7800
12. Solve the inequality:  
 $5y - 5 > 2y + 5$
- A.  $3 < \frac{1}{3}y$   
B.  $y > 3\frac{1}{3}$   
C.  $\frac{y}{3} = \frac{10}{3}$   
D.  $y > 3\frac{1}{3}$
13. The temperature of an ice cube was  $-35^{\circ}\text{C}$  at 7.30a.m. If the temperature was rising at a rate of  $4^{\circ}\text{C}$  every 30 minutes, what was the temperature of the ice cube by 11.30a.m?
- A.  $-3^{\circ}\text{C}$   
B.  $19^{\circ}\text{C}$   
C.  $3^{\circ}\text{C}$   
D.  $-19^{\circ}\text{C}$
14. Anipace deposited sh 38000 in a bank that paid compound interest at the rate of 5% p.a. How much money did she withdraw after 2 years?
- A. sh 1900  
B. sh 39900  
C. sh 41800  
D. sh 41895
15. A lorry carried 6 bags of maize weighing 90kg each, 15 bags of sugar each weighing 50kg, 25 cartons of omo each carton containing 100 packets of half kilogram each and 18 bags of rice each weighing 50kg each. What is the actual mass carried by the lorry in tonnes?
- A. 3.44  
B. 2.44  
C. 3.34  
D. 4.69

16. What is the measure of the exterior angle marked XYZ in the figure below?



- A.  $208^{\circ}$   
B.  $152^{\circ}$   
C.  $280^{\circ}$   
D.  $148^{\circ}$
17. Norah visited her grandmother between 24<sup>th</sup> of January to 6<sup>th</sup> of March in the year 2016. How many nights was she away from her home?
- A. 40  
B. 41  
C. 42  
D. 43
18. Which one of the following sets of measurements will form a right-angled triangle when drawn?
- A. 0.6cm, 1.5cm, 0.8cm  
B. 0.9cm, 1.5cm, 2.4cm  
C. 6cm, 0.8cm, 10cm  
D. 0.5cm, 1.2cm, 1.3cm
19. What is the next number in the pattern below? 0.4, 0.6, 1.0, 1.8, \_\_\_\_\_
- A. 3.0  
B. 3.4  
C. 3.2  
D. 3.6

20. The figure below represents a half cylindrical solid whose dimensions are as shown.



What is the surface area of the solid in  $\text{cm}^2$ ?

- A. 2156  
B. 3136  
C. 3696  
D. 11780
21. Chebet and her father visited *Naivas shopping centre* and bought the following items:
- 2kg of rice each sh 96  
2 bottles of water @ sh 30  
3 packets of cakes for sh 114  
 $1\frac{1}{2}$  kg of chicken meat @ sh 300  
Four  $\frac{1}{2}$  litre packets of milk @ sh 30
- If her father gave the cashier a thousand shilling note, how much more should he add to the cashier in order to get a balance of sh 100?
- A. sh 36  
B. sh 64  
C. sh 26  
D. sh 136
22. Tom took 2hrs 12min to cycle from home to school at an average speed of 8m/s. He cycles from school back home at an average speed of 12m/s. How much time does Tom take to cycle from home to school and back?
- A. 2hrs 56m  
B. 3hrs 40min  
C. 4hrs 24m  
D. 1hr 28min

23. The cash price of a sofa set is sh 80000. Pema bought it on hire purchase. The total amount he paid was 25% more than the cash price. He paid a deposit and the rest in 20 monthly equal instalments of sh 3000 each. How much deposit did he pay?

A. sh 20000  
B. sh 10000  
C. sh 60000  
D. sh 40000

24. Watemu paid sh 4200 for a mobile phone after getting a discount of  $6\frac{2}{3}\%$ . How much more would he have paid had he been given a discount of 4%?

A. sh 300  
B. sh 180  
C. sh 120  
D. sh 150

25. How many faces, vertices and edges does a triangular pyramid have?

	FACES	VERTICES	EDGES
A	4	4	9
B	4	4	6
C	5	4	6
D	4	6	6

26. The area of a trapezium is  $22.05\text{cm}^2$ . If the height is 3.5cm and one of its parallel sides is 5.7cm, what is the length of the other side?

A. 3.8cm  
B. 4.9cm  
C. 7.5cm  
D. 6.9cm

27. Mama Fatuma spent  $\frac{1}{4}$  of her June salary on school fees. She spent  $\frac{1}{4}$  of the remainder on rent and transport. She then spent  $\frac{1}{9}$  of what was left on food. If finally she had sh 12000, what was her total salary that month?

A. sh 17000  
B. sh 18000  
C. sh 24000  
D. sh 20000

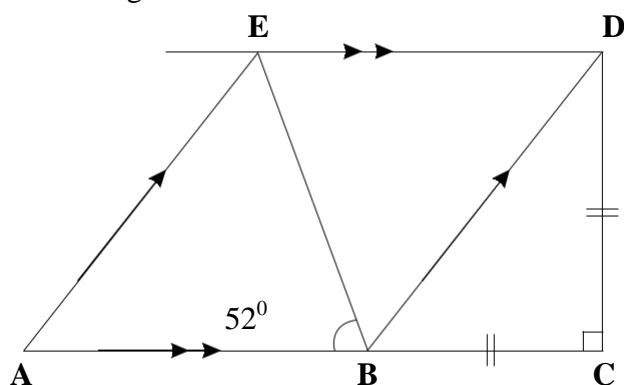
28. The mean mass of 6 boys is 35kg. The mass of the first 4 boys is 30kg, 38kg, 40.5kg and 39.5kg. If the other two boys weigh the same, what is the median mass?

- A. 31kg
- B. 34.5kg
- C. 38kg
- D. 39.5kg

29. The ratio of boys to girls at Shiners Academy is 3:5. The ratio of girls to teachers is 15:2. If there are 8 teachers in the school, how many pupils are there in that academy?

- A. 94
- B. 96
- C. 146
- D. 154

30. In the figure below, **ABDE** is a parallelogram and **DCB** is a right angled triangle.



Find the size of angle **BEA** if line **BC** and **DC** are equal?

- A.  $45^\circ$
- B.  $52^\circ$
- C.  $83^\circ$
- D.  $145^\circ$

31. A trader had money as follows:  
 2 notes of sh 1000  
 3 notes of sh 500  
 12 notes of sh 200  
 16 notes of sh 100  
 24 notes of sh 50

He changed  $\frac{2}{3}$  of the money into sh 20 coins and the rest into sh 5 coins. How many coins did he get?

- A. 290
- B. 580
- C. 870
- D. 1305

32. A saleslady is paid a basic salary of sh 9500 per month. She is also paid a commission of 5% on sales above sh 20000. In one month, she sold 36 radios each sh 3500. What was her total earnings that month?

- A. sh 5300
- B. sh 6300
- C. sh 14800
- D. sh 15800

33. Which one of the following is **true** for a trapezium?

- A. Sum of interior angles is  $180^\circ$
- B. Has only one pair of parallel lines
- C. Diagonals bisect each other
- D. Opposite sides are equal

34. Construct triangle **XYZ** where line **YZ** = 6cm, angle **YZX** =  $70^\circ$  and angle **YXZ** =  $55^\circ$ . Drop a perpendicular from point **X** to meet line **YZ** at point **O**.

Measure line **YO**.

- A. 1.8cm
- B. 2.5cm
- C. 3.9cm
- D. 4.2cm

35. Nine men working at the same rate can finish a job in 16 days. If 3 more men join them at the beginning, how many fewer days does it take to finish the job?

- A. 3
- B. 8
- C. 4
- D. 12

- 36.** Kakai bought oranges, mangoes and bananas. The number of oranges bought was 8 more than the number of mangoes. The number of bananas was twice the total number of oranges and mangoes. The total number of fruits bought was 48. If the number of mangoes was  $y$ , which of the equations below can be used to find the number of mangoes bought?
- A.  $y + 16 = 48$   
 B.  $6y + 16 = 48$   
 C.  $3y + 24 = 48$   
 D.  $6y + 24 = 48$

- 37.** A family consumes 50 decilitres of milk daily. How many litres altogether did the family consume in the month of January, February and March in the year 2010?
- A. 455  
 B. 450  
 C. 4550  
 D. 4500

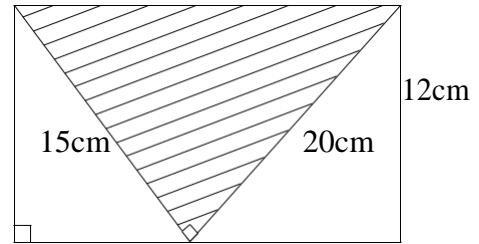
- 38.** The table below shows the commission charges for sending money by money order.

VALUE OF THE ORDER (SHS)	ORDINARY SHS	POSTA PAY (SHS)
0 - 4000	115	175
4001 - 5000	230	315
5001 - 6000	350	417
6001 - 7000	412	520
7001 - 8000	530	615
8001 - 9000	575	775
9001 - 10000	625	827

- Nyaputo sent three money orders. One worth sh 7500 by ordinary money order and the other two each worth sh 9500 by posta pay. How much money did she pay at the post office?
- A. sh 2184  
 B. sh 19184  
 C. sh 26500  
 D. sh 28684

- 39.** Simplify the following:
- $\frac{3(4p+8q)+2(7p+14q)-1\frac{1}{2}p-2\frac{1}{5}q}{47}$
- A.  $6\frac{1}{5}p + 12\frac{1}{5}q$   
 B.  $4\frac{1}{5}p + 8\frac{1}{5}q$   
 C.  $4\frac{23}{35}p + 9\frac{13}{35}q$   
 D.  $4\frac{23}{35}p + 13\frac{13}{35}q$

- 40.** The figure below represents a triangle enclosed in a rectangle.



- What is the area of the unshaded part in  $m^2$ ?
- A. 0.015  
 B. 1.4  
 C. 1.5  
 D. 150

- 41.** 41 electric posts are fixed at an interval of 35m apart. What distance does Tanui cover if he runs from the first post to the last and back?
- A. 1400m  
 B. 1435m  
 C. 2800m  
 D. 2870m
- 42.** Fatuma's salary was sh 5000. Her employer decreased her salary by 30% but later increased it by 20%. What is her new salary?
- A. sh 4200  
 B. sh 4000  
 C. sh 5600  
 D. sh 4500
- 43.** An aeroplane left town K at 2345hrs on Wednesday. It took  $6\frac{1}{2}$  hours to reach town Q. When did it reach town Q?
- A. 0715hrs on Tuesday  
 B. 0712hrs on Wednesday  
 C. 0615hrs on Thursday  
 D. 0615hrs on Wednesday

44. The table below shows a train fare from Nairobi to Kisumu for adults. A class of 40 pupils with their two teachers travelled from Nairobi to Nakuru. The following day, they travelled from Nakuru to Kisumu. Each pupil was charged half the fare of an adult.

NAIROBI				
90	GILGIL			
140	70	NAKURU		
220	150	190	KERICHO	
450	420	350	185	KISUMU

How much did they pay altogether?

- A. sh 10780  
 B. sh 11740  
 C. sh 18000  
 D. sh 20580

45. The table below shows how Juma scored in a class test.

SUBJECT	MATH	ENG	KISW	SCI	SSRE
SCALE AT 20	18	18	14	10	20

If a pie chart was to be drawn, what angle would represent Mathematics?

- A.  $18^\circ$   
 B.  $40^\circ$   
 C.  $80^\circ$   
 D.  $81^\circ$

46. In January, Mwema's salary was increased in the ratio 5:3 due to an increase in production. However in the month of March the same year, his salary was decreased by 20% due to low production. If his initial salary was sh 18000, what was his total salary in the month of March?

- A. sh 11520  
 B. sh 24000  
 C. sh 30000  
 D. sh 36000

47. What is the value of  $\frac{2q - r}{y} + n$  given that

$$n = \frac{1}{2}y,$$

$$y = \frac{10}{y} + 9,$$

$$q = \frac{1}{2}$$

- A. 7  
 B.  $2\frac{1}{2}$   
 C.  $6\frac{1}{5}$   
 D. 11

48. Which one of the following expressions is equal to

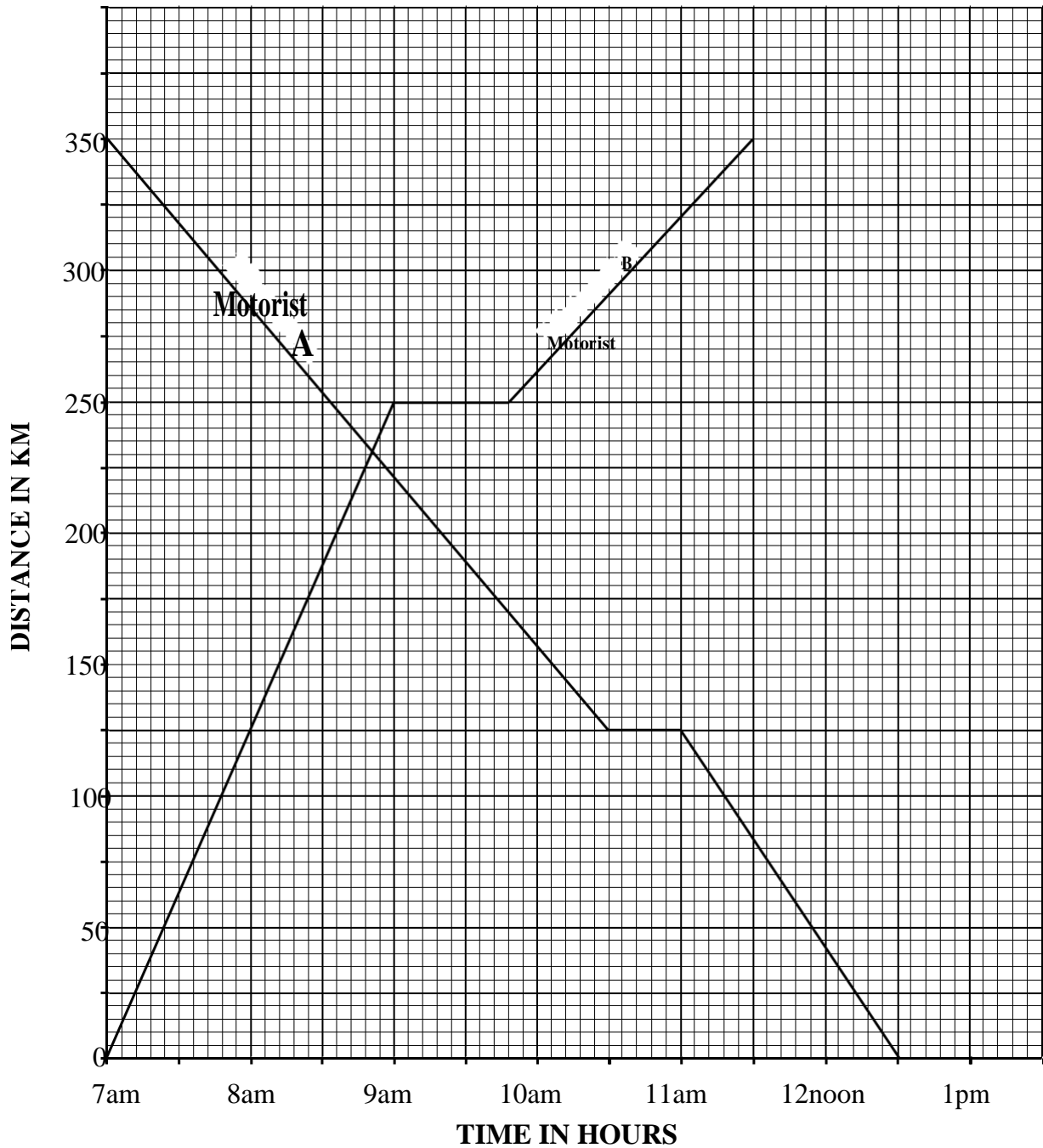
$$\frac{4(2x - 3y) + 3(4x + 9y)}{3(4x - y) - 2x + 8y}?$$

- A.  $\frac{20x + 6y}{10x + 5y}$   
 B.  $\frac{20x - 39y}{10x - 11y}$   
 C.  $\frac{2x + 3y}{x + y}$   
 D.  $\frac{4x + 3y}{2x + y}$

49. Hassan shared his land among his three children. He gave  $\frac{2}{3}$  of the land to the first child and  $\frac{1}{4}$  of the remainder to the second child. He was left with 0.273 hectares which he gave to the third child. How much land did he share out altogether?

- A. 0.819ha  
 B. 1.092ha  
 C. 1.638ha  
 D. 3.276ha

50. The graph below shows two motorists travelling from different towns, a distance of 350km.



How far apart were the motorists at 11am?

- A. 315 km
- B. 125 km
- C. 190 km
- D. 195 km