THE KENYA NATIONAL EXAMINATIONS COUNCIL

KCPE 2010

MATHEMATICS

Time: 2 hours

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 the correct answer is to be shown by drawing a **dark line** inside the box in which the letter you have chosen is written.

Example
In the Question Booklet:

9. A motorist covers 3 km in every $1\frac{3}{4}$ minutes. How many kilometres will he have covered from 8.19 am to 9.08 am?

   A. 28
   B. 84
   C. 147
   D. $257\frac{1}{4}$

The correct answer is B (84).

On the answer sheet:

9 ⟨A⟩ ▮ ⟨C⟩ ⟨D⟩ 19 ⟨A⟩ ⟨B⟩ ⟨C⟩ ⟨D⟩ 29 ⟨A⟩ ⟨B⟩ ⟨C⟩ ⟨D⟩ 39 ⟨A⟩ ⟨B⟩ ⟨C⟩ ⟨D⟩ 49 ⟨A⟩ ⟨B⟩ ⟨C⟩ ⟨D⟩

In the set of boxes numbered 9, the box with the letter B 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 15 printed pages and 1 blank page.

1. Which one of the following is 60400502 in words?
   A. Six million four hundred thousand five hundred and two.
   B. Sixty million four thousand five hundred and two.
   C. Sixty million forty thousand five hundred and two.
   D. Sixty million four hundred thousand five hundred and two.

2. What is the number 5826.3407 rounded off to 3 decimal places?
   A. 5826.34
   B. 5826.340
   C. 5826.341
   D. 5826.3410

3. How many days are there between 15th July and 15th September?
   A. 60
   B. 61
   C. 62
   D. 63

4. What is the place value of digit 6 in the number 706053?
   A. Six hundreds
   B. Hundreds
   C. Six thousands
   D. Thousands

5. What is the value of $\dfrac{3(4^2 + 2^2) - 5 \times 6 \div 2}{3 \times 5}$?
   A. 59
   B. 17
   C. 11
   D. 3

6. Teckla bought the following items from a shop.
   3 kg of sugar @ sh 68
   250 g of tea leaves for sh 85
   2 bars of soap @ sh 38
   1 kg of cooking fat for sh 109
   2 kg packet of rice for sh 149.
   Teckla paid for the items using a sh 1 000 note. How much balance did she receive?
   A. sh 228
   B. sh 377
   C. sh 551
   D. sh 623

7. In the figure below, lines EF and GH are parallel. Lines JK and MN are transversals which intersect at V. Angle MQF = 50° and angle HSK = 30°.
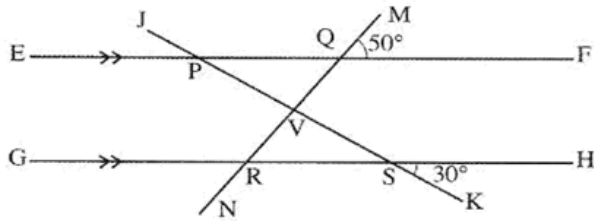
What is the size of angle QVS?
A. 150°
B. 130°
C. 100°
D. 80°

8. Which one of the numbers below is the square of $2\frac{4}{5}$?

A. $7\frac{21}{25}$

B. $4\frac{16}{25}$

C. $39\frac{1}{5}$

D. $5\frac{3}{5}$

9. What is the next number in the pattern
10, 11, 15, 24, 40, 65, _____?
A. 105
B. 101
C. 90
D. 74

10. What is the simplified form of $5x + \frac{1}{4}(8x - 2y)$?
A. $37x - 8y$
B. $7x - \frac{1}{2}y$
C. $28x - 2y$
D. $7x - 2y$

11. Below is a bus timetable from town J to town P.

TOWN	ARRIVAL TIME	DEPARTURE TIME
J		7.00 a.m.
K	9.30 a.m.	10.00 a.m.
L	11.15 a.m.	11.30 a.m.
M	12.15 p.m.	12.25 p.m.
N	1.10 p.m.	1.20 p.m.
P	1.50 p.m.	2.00 p.m.

How long did the bus take to travel from town K to town N?
A. 3 h 10 min
B. 3 h 20 min
C. 3 h 40 min
D. 8 h 50 min

12. The perimeter of a rectangular plot of land is 280 metres. The width of the plot is 60 metres. What is the length of the plot?
A.   70 m
B.   80 m
C. 110 m
D. 160 m

13. Point S and line QR are shown in the space below. Using a pair of compasses, drop a perpendicular from point S to meet line QR at T.

• S

Q   R

What is the length of line ST?
A. 2.8 cm
B. 3.5 cm
C. 4.5 cm
D. 5.5 cm

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14. What is the value of $\frac{2}{5} \div 1\frac{2}{3}$ of $\frac{3}{4}$?

A. $\frac{8}{9}$

B. $\frac{1}{2}$

C. $\frac{9}{50}$

D. $\frac{8}{25}$

15. Tumbo paid sh 10 200 for a cupboard after getting a discount of 15%. What was the marked price of the cupboard?

A. sh 1 530

B. sh 8 670

C. sh 11 730

D. sh 12 000

16. Three bells are set to ring out at intervals of 4 minutes, 6 minutes and 9 minutes respectively. If they all ring together now, after how many minutes will they ring together next?

A. 12

B. 18

C. 36

D. 216

17. A rectangular container is 2 m long, 0.9 m wide and 2.5 m high. The container has water to a height of 1.5 m. How much more water in litres is needed to fill the container?

A. 1 800

B. 2 700

C. 4 500

D. 1 000

18. The fractions $\frac{3}{7}$, $\frac{2}{5}$, $\frac{5}{8}$, $\frac{1}{2}$ are to be arranged from the smallest to the largest. Which one of the following is the correct order?

A. $\frac{1}{2}$, $\frac{2}{5}$, $\frac{3}{7}$, $\frac{5}{8}$

B. $\frac{2}{5}$, $\frac{3}{7}$, $\frac{1}{2}$, $\frac{5}{8}$.

C. $\frac{3}{7}$, $\frac{2}{5}$, $\frac{1}{2}$, $\frac{5}{8}$

D. $\frac{5}{8}$, $\frac{1}{2}$, $\frac{3}{7}$, $\frac{2}{5}$

19. Which one of the following properties is **TRUE** for both a square and a rhombus?

    A. Diagonals are equal.
    B. All angles are equal.
    C. Opposite angles add up to two right angles.
    D. Diagonals bisect at right angles.

20. The number of birds observed in a certain area during certain months of the year are as shown in the table below.

MONTHS	APRIL	MAY	JUNE	JULY	AUGUST
NUMBER OF BIRDS	96	104	80	118	94

Which one of the following numbers is the highest mean of the birds recorded into two consecutive months?

    A. 106
    B. 99
    C. 111
    D. 100

21. Construct a triangle XYZ in which XY = 7.2 cm, YZ = 5.8 cm and ZX = 6.2 cm.

What is the size of angle XYZ?

    A. 125°
   B. 75°
    C. 55°
    D. 50°

Working Space

**22.** What is the value of x in the equation
$\frac{1}{2}(x+1)+\frac{1}{3}(2x-1)=5$?

   A. $4\frac{1}{7}$

   B. $4\frac{2}{7}$

   C. $4\frac{3}{7}$

   D. $\frac{4}{7}$

23. A packet is in the form of a pyramid with a square base. Which one of the following statements is **TRUE** of the number of faces, edges and vertices the packet has?

   A.   4 faces, 6 edges and 4 vertices

   B.   2 faces, 1 edge and 1 vertex

   C.   5 faces, 9 edges and 6 vertices

   D.   5 faces, 8 edges and 5 vertices.

24. A factory hired 9 people to complete a piece of work in 15 hours. How many more hours did it take them to complete the work if 3 people did not turn up?

   A.   30 hours

   B. $22\frac{1}{2}$ hours

   C.   5 hours

   D. $7\frac{1}{2}$ hours

25. Which one of the following sets of measurements will form a right angled triangle when drawn?

   A.   9 cm, 16 cm, 25 cm

   B.   10 cm, 24 cm, 26 cm

   C.   5 cm, 12 cm, 17 cm

   D.   7 cm, 2.4 cm, 2.5 cm

26. A pick-up truck was loaded with 4 cartons of fat and 60 bales of flour. Each carton contained twenty four 250 g packets of fat. The mass of each empty carton was 500 g. Each bale contained twelve 2 kg packets of flour. What is the total load, in tonnes?

   A.   1466

   B.   146.6

   C.   14.66

   D.   1.466

27. Kamau bought a piece of land for 2 million shillings. He subdivided it into 25 plots of equal area. He then sold all the plots and made a 20% profit. What was the selling price for each plot?

A. sh 400 000
B. sh 96 000
C. sh 80 000
D. sh 16 000

28. The table below shows how Kigen utilizes his piece of land.

Purpose	Homestead	Maize Cultivation	Tea Cultivation	Grazing
Number of Hectares	$\frac{3}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{2}$

Which one of the bar graphs below correctly represents the information above.

A

B

C

D
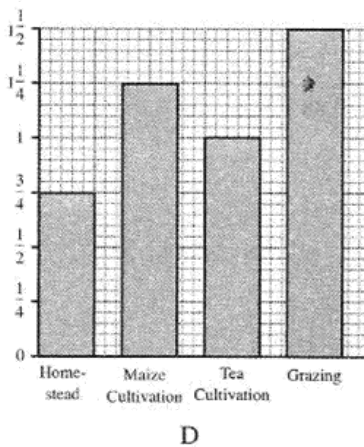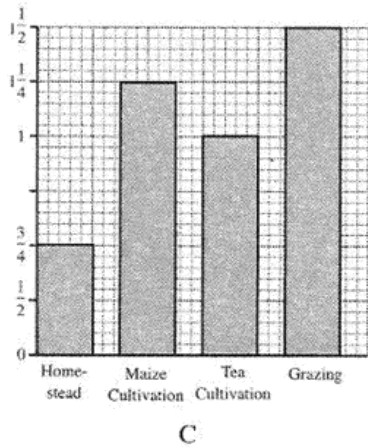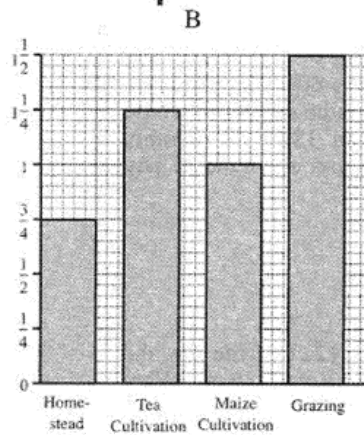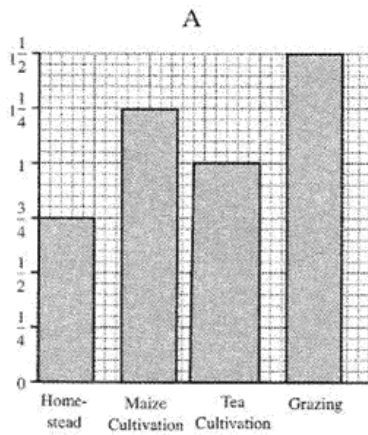
29. Irimu deposited sh 10 000 in a financial institution that offered simple interest at the rate of 5% per annum. Ndege deposited sh 10 000 in a bank that offered compound interest at the rate of 5% per annum. How much more interest had Ndege's money earned than Irimu's after 2 years?
    A. sh 25
    B. sh 1 000
    C. sh 1 025
    D. sh 2 025

30. At a sports meeting the number of men was 200. The number of girls was three times that of men and 120 more than that of women. The number of boys was 30 more than that of girls. What was the total number of people at the meeting?
    A. 719
    B. 1 850
    C. 1 910
    D. 2 150

31. The cash price of a radio was sh 4 500. The hire purchase price of the radio was 60% more than the cash price. Muya bought the radio on hire purchase terms. He paid a deposit and 12 equal monthly instalments of sh 540 each. How much did he pay as deposit?
    A. sh 720
    B. sh 6 480
    C. sh 6 660
    D. sh 7 200

32. A rectangle 25 cm long and 12 cm wide has the same area as a triangle whose height is 10 cm. What is the length of the base of the triangle?
    A. 15 cm
    B. 30 cm
    C. 60 cm
    D. 300 cm

33. What is the value of
    $0.77 + 5.00$ of $(0.57 - 0.33) + 0.88 \times 0.4$?
    A. 2.322
    B. 1.7368
    C. 1.140
    D. 0.90592

34. A salesman is paid a salary of sh 5 000 per month. He is also paid a 2.5% commission on the sales above sh 100 000.

If the salesman sold goods worth sh 500 000 in a certain month. What was his total earnings?
- A. sh 10 000
- B. sh 12 500
- C. sh 15 000
- D. sh 17 500

35. On a map whose scale is 1:50 000 a piece of land is represented by a rectangle measuring 3 cm by 2 cm. What is the actual size of this land in hectares?
- A.   15
- B.   150
- C.   1 500
- D. 15 000

36. Three schools Mwangaza, Kivuli and Nuru received a total donation of 165 textbooks. Kivuli got 8 books more than Mwangaza, while Nuru got half the total of what Mwangaza and Kivuli got. If the number of books donated to Mwangaza is represented by the letter m, which one of the following equations can be used to get the value of m?
- A. $6m + 24 = 165$
- B. $1\frac{1}{2}m + 12 = 165$
- C. $3m + 12 = 165$
- D. $3m - 12 = 165$

37. At the beginning of year 2005, there were 800 pupils in a school of whom 55% were boys. At the end of the year the number of girls had increased by 20% and that of boys had decreased by 10%. What was the total number of pupils in the school at the end of the year?
- A. 828
- B. 916
- C. 826
- D. 880

38. The height of an isosceles triangle is 4 cm. Each of the two equal sides measures 5 cm. What is the area of the triangle?
- A. $6\ cm^2$
- B. $12\ cm^2$
- C. $15\ cm^2$
- D. $24\ cm^2$

39. The table below shows the number of crates of soda Mutuma sold in one week. The number of crates sold on Friday was not recorded.

DAY OF WEEK	MON	TUE	WED	THUR	FRI	SAT	SUN
NUMBER OF CRATES	8	10	11	18	–	16	8

If the total number of crates of soda sold in seven days was 84. What was the median sale?
A. 13
B. 12
C. 11
D. 8

40. A teacher had a certain number of books. She gave $\frac{1}{3}$ of the books to John and $\frac{1}{4}$ to Lucy. She also gave $\frac{1}{10}$ of the remaining books to Patel. If the teacher was left with 18 books, how many books had she given to Lucy?
A. 48
B. 16
C. 12
D. 2

41. The perimeter of a rectangle is 24 cm. The length of the rectangle is 2 cm more than the width. What is the area of the rectangle?
A. 15 cm^2
B. 20 cm^2
C. 35 cm^2
D. 143 cm^2

42. A cyclist took 15 minutes to travel from his home to town at a speed of 18 km/h. He took 24 minutes to travel back from town to his home. What was his speed, in km/h, from town to his home?
A. $1\frac{4}{5}$
B. $4\frac{1}{2}$
C. $11\frac{1}{4}$
D. $14\frac{8}{13}$

43. Sera shared part of her land among her four children. Their shares were 0.29, 0.26, 0.21 and 0.14 of the land. If the part that was shared was 36 hectares, how many hectares of the land remained?
   A. 3.6
   B. 40
   C. 0.1
   D. 4

44. A farmer harvested 144 bags of maize in one season. In the second season the yield increased in the ratio 4:3. The farmer supplied all the bags of maize harvested in the second season equally to three millers. How many bags of maize did each miller get?
   A. 192
   B. 64
   C. 48
   D. 36

45. A rectangular water tank whose base is 1.5 m by 0.5 m is to be filled with water using 50 litre containers. How many such containers will be required to fill the tank to a height of 1 metre?
   A. 15
   B. 1.5
   C. 150
   D. 1500

46. A watch loses 30 seconds every hour. If the watch was set right on Sunday at 11.30 p.m. What day and time did it show after 10 hours?
   A. Monday 9.25 a.m.
   B. Monday 9.30 a.m.
   C. Monday 9.35 a.m.
   D. Monday 9.25 p.m.

**47.** The graph below shows the journeys of two motorists Karimi and Nzomo.
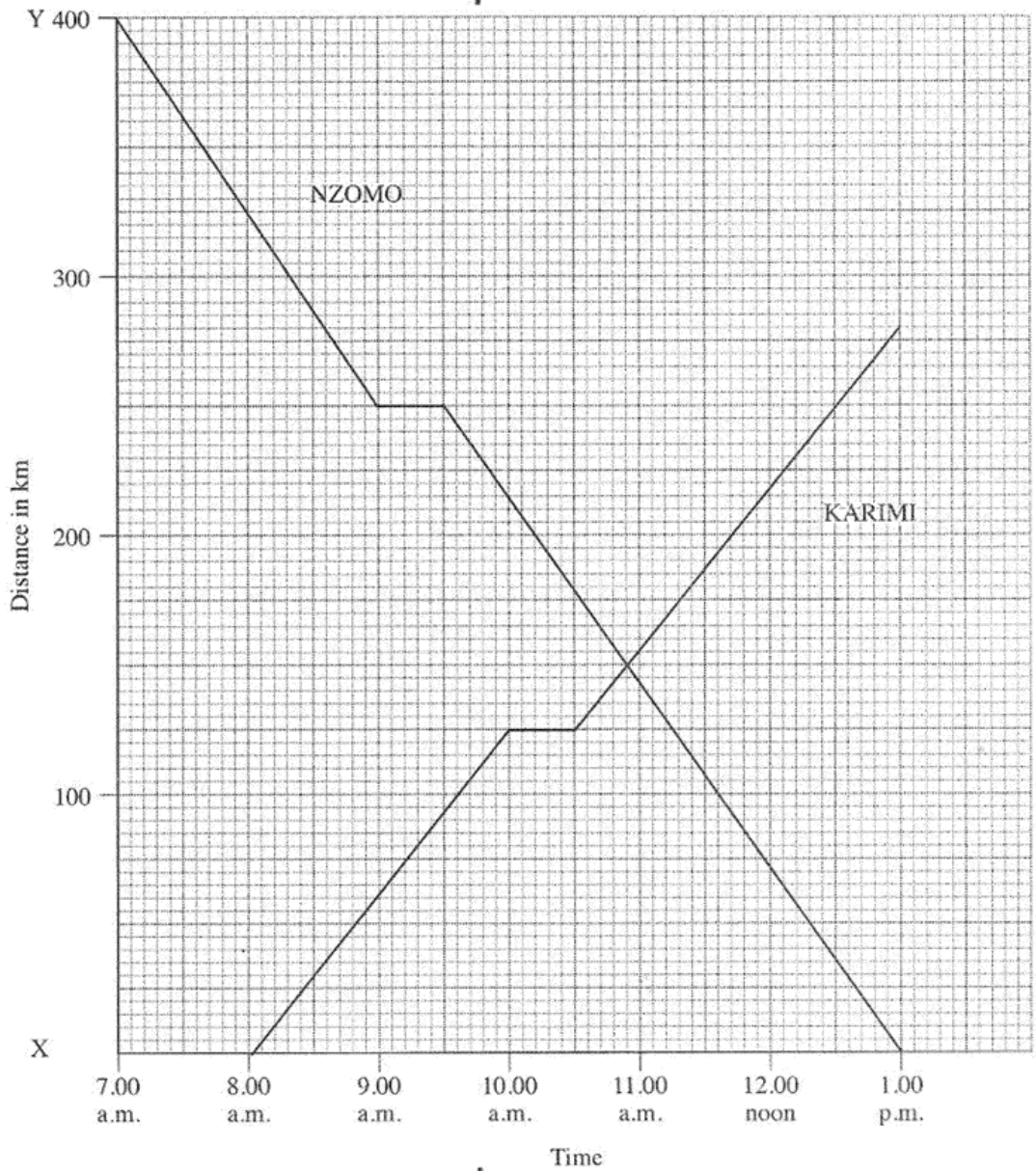
How far from town X was Nzomo when Karimi stopped to rest?
A.   60 km
B. 185 km
C. 215 km
D. 250 km

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43. Sera shared part of her land among her four children. Their shares were 0.29, 0.26, 0.21 and 0.14 of the land. If the part that was shared was 36 hectares, how many hectares of the land remained?
   A. 3.6
   B. 40
   C. 0.1
   D. 4

44. A farmer harvested 144 bags of maize in one season. In the second season the yield increased in the ratio 4:3. The farmer supplied all the bags of maize harvested in the second season equally to three millers. How many bags of maize did each miller get?
   A. 192
   B. 64
   C. 48
   D. 36

45. A rectangular water tank whose base is 1.5 m by 0.5 m is to be filled with water using 50 litre containers. How many such containers will be required to fill the tank to a height of 1 metre?
   A. 15
   B. 1.5
   C. 150
   D. 1500

46. A watch loses 30 seconds every hour. If the watch was set right on Sunday at 11.30 p.m. What day and time did it show after 10 hours?
   A. Monday 9.25 a.m.
   B. Monday 9.30 a.m.
   C. Monday 9.35 a.m.
   D. Monday 9.25 p.m.

48. The figure below represents a half of a cylindrical piece of wood of diameter 28 cm and a length of 30 cm.
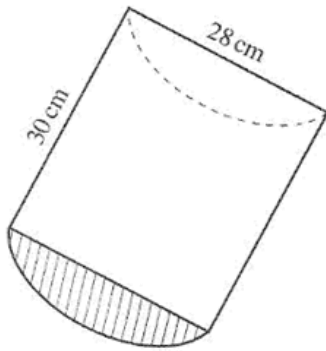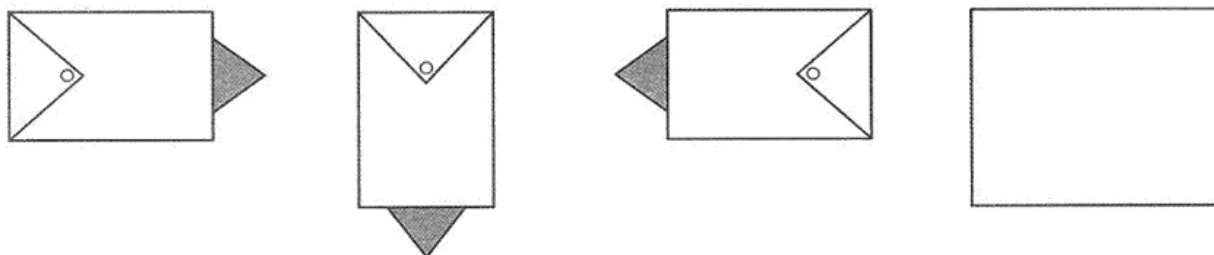
What is the surface area of the solid in cm²?
(Take $\pi = \frac{22}{7}$)

A   4096
B. 2776
C. 2468
D. 1936

49. On the line QR given below, construct a triangle PQR such that PQ = PR = 7 cm.
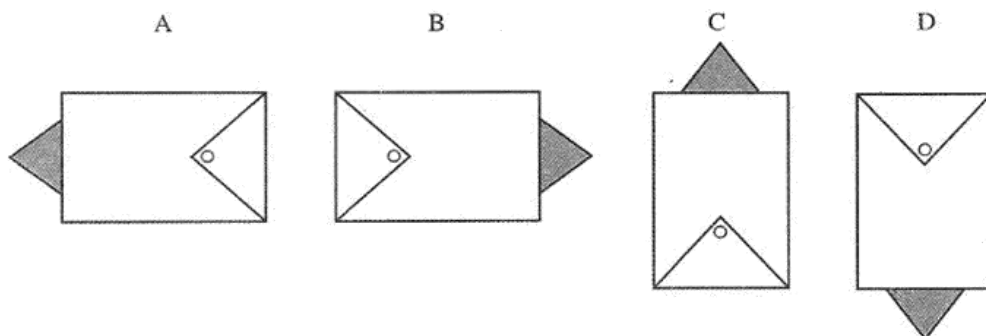Construct a bisector of angle PQR to meet line PR at X.

Q   R

What is the size of angle QXR?
A. 78°
B. 44°
C. 68°
D. 102°

50. The figures below show a pattern of shapes.

Which one of the shapes below should be drawn in the blank box to continue with the pattern?

A   B   C   D

Working Space

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