KCPE 2005

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:

14. What is $1\frac{1}{2}\%$ expressed as a ratio in its simplest form?

A. 3:2
B. 2:300
C. 3:200
D. 200:3

The correct answer is C (3:200).

On the answer sheet:

In the second set, the box with the letter C 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 50205082 in words?
A. Fifty million two hundred and fifty thousand and eighty two.
B. Fifty million twenty five thousand and eighty two.
C. Fifty million two hundred thousand five hundred and eighty two.
D. Fifty million two hundred and five thousand and eighty two.

2. What is the place value of the digit 6 in the number 2649053?
A. Hundred thousands
B. Millions
C. Six hundred thousand
D. Ten thousands

3. What is the number 29·34046 rounded off to the nearest thousandth?
A. 29·3
B. 29·34
C. 29.340
D. 29·341

4. What is the smallest number that can be divided by 12, 18 and 27 without a remainder?
A. 108
B. 36
C. 3
D. 5 832

5. A shopkeeper bought 30 eggs. He then sold each egg at sh 6, making a profit of 20%. How much had he paid for the eggs?
A. sh 144
B. sh 150
C. sh 180
D. sh 216

6. What is the value of $8 \div 0{\cdot}02 + 1{\cdot}35 \times 0{\cdot}4$?
A. 400·54
B. 40·54
C. 160·54
D. 405·4

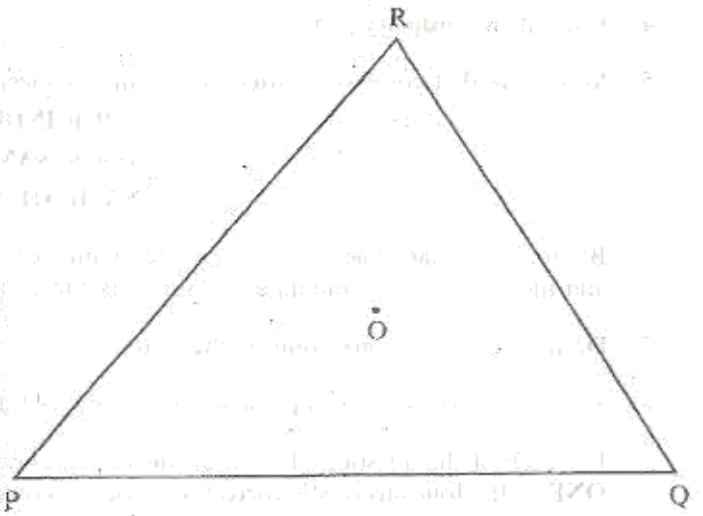
7. The marked price of a blouse was sh 750. Halima bought five such blouses after being given a 10% discount. How much did she pay for the five blouses?
A. sh 3 675
B. sh 675
C. sh 3 375
D. sh 3 700

8. Katua bought the following items from a kiosk:

2 kg of rice for sh 152
$1\frac{1}{2}$ kg of meat @ sh 160
2 loaves of bread @ sh 23

What balance did he receive if he paid for the items using a sh 1000 note?
A. sh 438
B. sh 562
C. sh 410
D. sh 665

9. In the figure below, RPQ is a triangle. Point O is inside the triangle. Join RO, PO and QO.



What is the size of the obtuse angle POQ?
A. 54°
B. 114°
C. 120°
D. 126°

10. The ages, in years, of 10 pupils in a class are: 16, 18, 15, 14, 17, 16, 14, 13, 19 and 14. What is the median age of the pupils?
A. 16·5
B. 15·6
C. 14
D. 15·5

11. Which one of the following statements is **true** about **all** quadrilaterals?
A. Opposite sides are equal.
B. Diagonals bisect at right angles.
C. Sum of interior angles is 360°.
D. Angles are right angles.

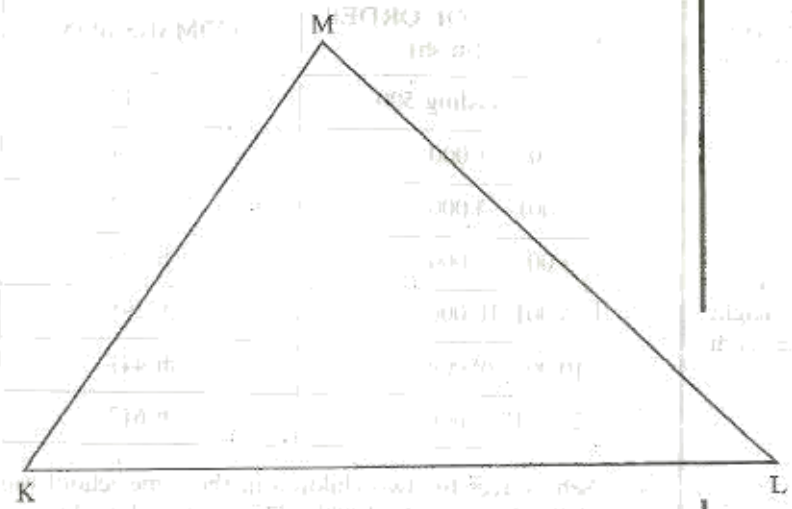
12. A container of volume 1 cubic metre is full of juice. The juice is then poured into five-litre containers. How many such containers are used?

A. 2
B. 200
C. 2 000
D. 200 000

13. A road is represented by a length of 3·2 cm on a map. What is the actual length of the road in kilometres if the scale used is 1:50 000?

A. 0·16
B. 1·6
C. 16
D. 160

14. In the triangle KLM drawn below, construct the perpendicular bisector of line KM to cut line KM at N and line KL at P.



What is the size of the acute angle KPN?

A. 145°
B. 90°
C. 55°
D. 35°

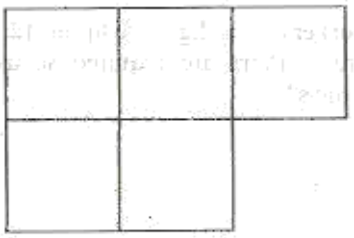
15. What is the value of x in $3(2x + 1) + 5(x + 4) = 61$?

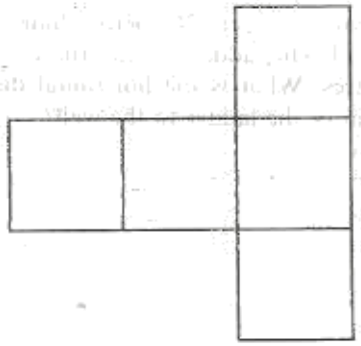
A. $3\frac{5}{11}$
B. $5\frac{1}{11}$
C. $7\frac{7}{11}$
D. $81\frac{1}{11}$

16. Which one of the following is the correct net for an open cube?

A.


B.


C.


D.


17. The table below represents the sales of milk in litres by a vendor in five days. The sale for Thursday is **not** shown.

DAYS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
NUMBER OF LITRES	25	19	23		22

One litre of milk was sold for sh 25. The vendor got a total of sh 2 925 for the sale of milk during the five days. How many more litres of milk did the vendor sell on Thursday than on Tuesday?

A. 9
B. 28
C. 47
D. 117

18. Sixteen workers can dig a field in 12 days. How many more workers are required so as to do the work in 8 days?

A. 40
B. 24
C. 8
D. 10

19. The top of a ladder, 26 metres long, leans on a vertical wall. The ladder touches the wall at a height of 10 metres. What is the horizontal distance from the bottom of the ladder to the wall?

A. 16 m
B. 18 m
C. 24 m
D. 576 m

Working Space

20. The table below shows the postal rates for sending a money order.

VALUE OF ORDER (in sh)	COMMISSION
Not exceeding 500	sh 42
501– 1 000	sh 114
1 001– 3 000	sh 174
3 001– 5 000	sh 209
5 001–10 000	sh 295
10 001–20 000	sh 441
20 001–30 000	sh 617

School fees for two children in the same school was sh 9 400 and sh 11 800. The father bought one money order to pay the total amount of fees. How much more would he have spent had he bought two separate money orders for the fees?

A. sh 119
B. sh 146
C. sh 736
D. sh 617

21. What is the next number in the pattern 1, 3, 7, 15, . . . ?

A. 22
B. 23
C. 25
D. 31

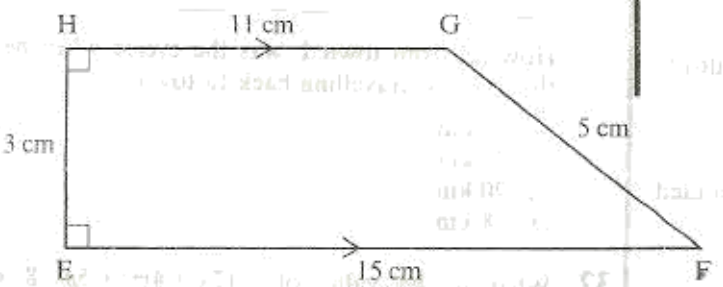
22. The table below shows Sagana–Nanyuki train fares for adults.

STATION	NANYUKI	NARO MORU	KIGANJO	KARATINA	SAGANA
NANYUKI	–	20	35	55	70
NARO MORU	20	–	20	35	50
KIGANJO	35	20	–	20	35
KARATINA	55	35	20	–	20
SAGANA	70	50	35	20	–

The fare for children is half that of adults. Taipei and his two children travelled from Nanyuki to Sagana. On their return journey they first paid the fare to Karatina. They later paid the fare to Nanyuki. How much more money did they spend on travel for their return journey?

A. sh 150
B. sh 140
C. sh 15
D. sh 10

23. The figure below is a trapezium. Lines HG = 11 cm, GF = 5 cm, EF = 15 cm and HE = 3 cm. Line EF is parallel to HG and angle FEH = angle EHG = 90°.



What is the area of the figure?

A. 78 cm^2
B. 39 cm^2
C. 65 cm^2
D. 75 cm^2

24. A rectangular container 45 cm long and 25 cm wide was full of water. After removing 22·5 litres of the water, the level of water became 4 cm high. What was the height of the container?

A. 24 cm
B. 20 cm
C. 16 cm
D. 6 cm

25. Nekesa has p pencils. Rhoda has 3 more pencils than Nekesa. Karani has two pencils less than the total number that Nekesa and Rhoda have. How many pencils do they have altogether?

A. $8p - 2$
B. $4p + 4$
C. $2p + 1$
D. $2p + 4$

26. Cherono spent sh 8 100 on food in May. In the month of June she spent 10% less on food than in May. How much money did she spend on food in June?

A. sh 810
B. sh 7 290
C. sh 9 000
D. sh 8 910

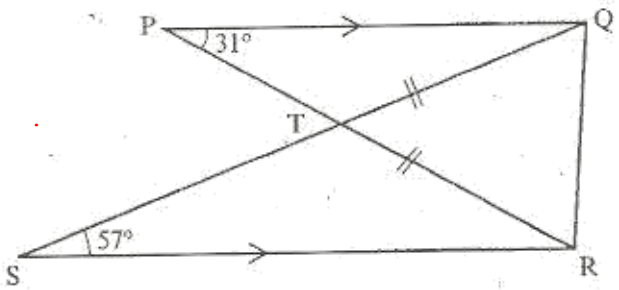
27. Amina shared money among her three children. The first got $\frac{1}{3}$ while the second got $\frac{1}{4}$ of the money. The third got $\frac{1}{2}$ of what remained. Amina was left with sh 1 500. How much money had she before it was shared?

A. sh 3 000
B. sh 5 700
C. sh 7 200
D. sh 3 600

28. A motorist travelling at an average speed of 84 km/h took 2 hours and 30 minutes to travel from town M to town N. She then took 3 hours and 20 minutes to travel back to town M. What was the average speed for the whole journey?

A. 36 km/h
B. 63 km/h
C. $73\frac{1}{2}$ km/h
D. 72 km/h

29. In the figure below, line PQ is parallel to line SR and QT is equal to TR. Angle QPT = 31° and angle TSR = 57°.



What is the size of angle PQR?

A. 46°
B. 88°
C. 103°
D. 92°

30. The charges for sending a telegram were as follows:

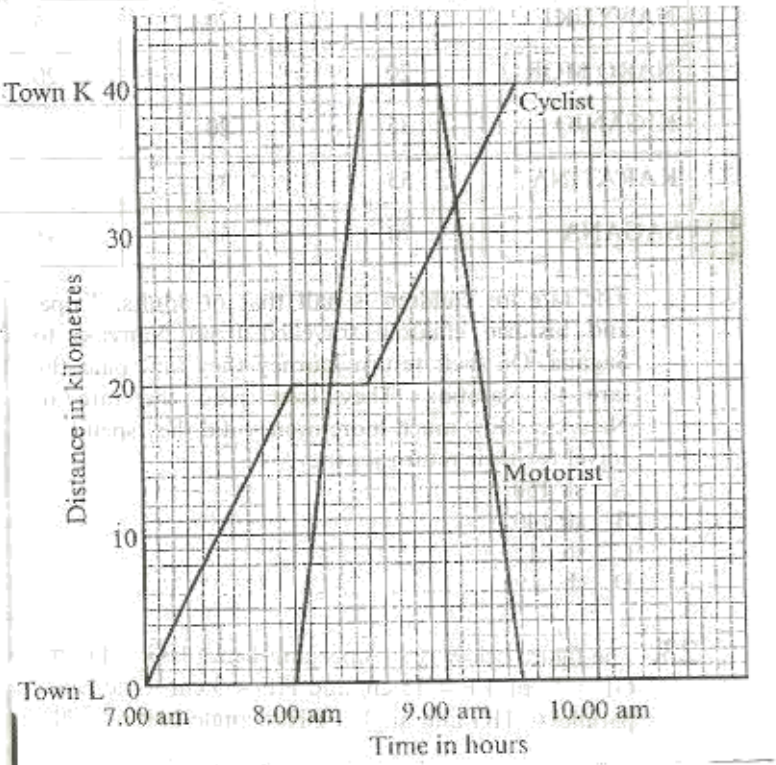
The first 10 words or less sh 15.
Any additional words sh 1·50 each.
Abbreviations and punctuation marks are counted as words.
A tax of 20% is charged on the amount.

The total amount to be paid is rounded off to the nearest 50 cents. What was the cost of sending the following telegram?

JOHN MLAMA P.O. BOX 360 NYERI GOING TO KISUMU AFTER THE EXAMINATION KOIGI

A. sh 25
B. sh 24
C. sh 28·80
D. sh 29·00

31. Below is a travel graph showing the journey of a motorist travelling from town L to town K and back, and that of a cyclist travelling from town L to town K.



How far from town L was the cyclist when he met the motorist travelling back to town L?

A. 40 km
B. 32 km
C. 20 km
D. 8 km

32. What is the value of $\frac{1}{3}(2x + 4y^2) + 5p - 8$ when $p = 6$, $x = 2p$ and $y = \frac{1}{2}x - 1$?

A. 130
B. $63\frac{1}{3}$
C. $43\frac{1}{3}$
D. $36\frac{2}{3}$

33. A machine packs 250 two-kilogram packets of sugar while another packs 375 one-kilogram packets each day. How many tonnes of sugar altogether, do the two machines pack in five days?

A. 0·875
B. 3·125
C. 4·375
D. 6·25

34. A square of side 2 cm is cut from each corner of a rectangular paper measuring 8 cm by 12 cm. Which one of the following statements is **true**?

A. The perimeter of the remaining paper is **greater than** the perimeter of the rectangular paper by 16 cm.
B. The perimeter of the remaining paper is **less than** the perimeter of the rectangular paper by 16 cm.
C. The perimeter of the rectangular paper is **reduced** by 8 cm.
D. The perimeter of the remaining paper is **equal to** the perimeter of the rectangular paper.

35. A salesman is paid a salary of sh 1 500 per month plus a commission of $2\frac{1}{2}\%$ on the sale of goods above sh 10 000. In one month he was paid a total of sh 1 800. How much was the sale of the goods?

A. sh 300
B. sh 12 000
C. sh 22 000
D. sh 82 000

36. In a group of 126 spectators the ratio of men to women was 3:4. What is the new ratio if 2 more men and 8 more women joined the group of spectators?

A. 7:10
B. 5:12
C. 13:16
D. 1:4

37. A clock was set on Monday at 8.30 a.m. On Tuesday, the following day, the clock showed 8.45 p.m. when the correct time was 8.30 p.m. How many minutes was the clock gaining in every 24 hours?

A. 10 minutes
B. $7\frac{1}{2}$ minutes
C. 15 minutes
D. 30 minutes

38. The base of a closed cuboid measures 4 cm by 5 cm and the height is 7 cm. The base and the top parts of the cuboid are painted. What is the total surface area of the parts which are **not** painted?

A. 166 cm^2
B. 126 cm^2
C. 63 cm^2
D. 40 cm^2

39. During an election the winning candidate got 0·425 of the votes cast while the other two candidates got 0·39 and 0·183 respectively. There were 48 spoilt votes. How many votes did the winning candidate get?

A. 24 000
B. 10 200
C. 9 360
D. 4 392

40. A motorist started on a journey of 250 km at 6.30 a.m., travelling at an average speed of 100 km/h. After travelling for 150 km, the car got a puncture and it took him 30 minutes to change the wheel. He then continued with the rest of the journey at an average speed of 80 km/h. At what time did he reach his destination?

A. 9.15 a.m.
B. 9.45 a.m.
C. 9.30 a.m.
D. 9.55 a.m.

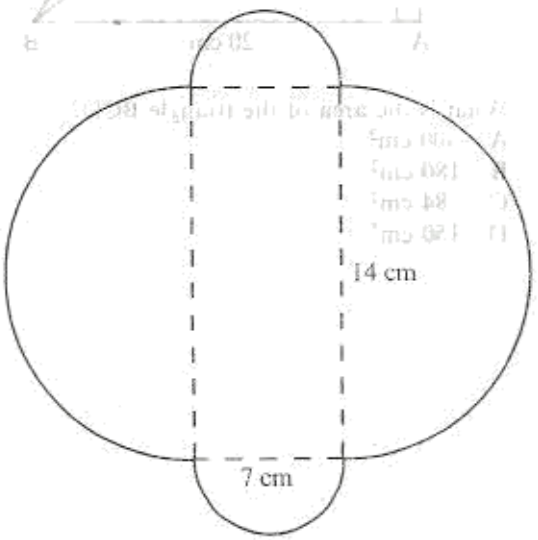
41. Four children bought 53 oranges altogether. Nekoye bought x oranges and Kamau bought 9 oranges more than Nekoye. Fatuma bought twice as many oranges as Nekoye. Atieno bought as many oranges as both Kamau and Fatuma bought. Which one of the following equations can be used to find the number of oranges Nekoye bought?

A. $5x + 22 = 53$
B. $5x + 18 = 53$
C. $7x + 9 = 53$
D. $7x + 18 = 53$

42. Waithera borrowed sh 10 000 for a period of two years. She was charged compound interest at the rate of 15% per year. How much interest did she pay altogether?

A. sh 1 500
B. sh 3 000
C. sh 3 225
D. sh 1 725

43. The figure below represents a table mat made up of a rectangle and four semi-circles. The rectangle measures 14 cm by 7 cm.



What is the area of the table mat? $\left(\text{Take } \pi = \frac{22}{7}\right)$

A. $192\frac{1}{2}$ cm^2
B. 868 cm^2
C. $290\frac{1}{2}$ cm^2
D. $194\frac{1}{4}$ cm^2

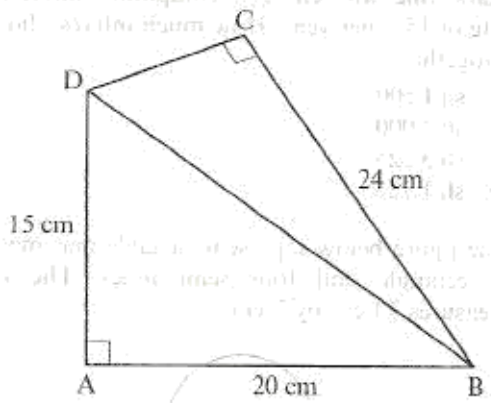
44. The cash price of a tractor is 1·8 million shillings. Rotich bought it on hire purchase terms. The total amount he paid was 30% more than the cash price. He paid a deposit of sh 660 000 and the remainder in 24 equal monthly instalments. How much was each instalment?

A. sh 70 000
B. sh 97 500
C. sh 47 500
D. sh 25 000

45. Omala and Mwite had packets of tea to be packed into cartons. Each carton holds 46 packets. Omala packed 63 cartons and remained with 24 packets while Mwite packed 54 cartons and remained with 19 packets. How many more packets of tea had Omala than Mwite?

A. 419
B. 414
C. 409
D. 5 425

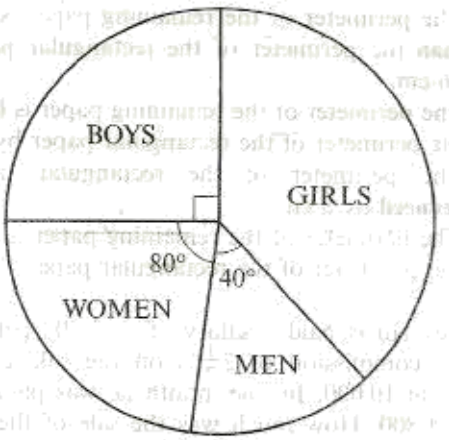
46. The figure shown below, is formed by two right-angled triangles ABD and BCD.



What is the area of the triangle BCD?

A. 300 cm^2
B. 180 cm^2
C. 84 cm^2
D. 150 cm^2

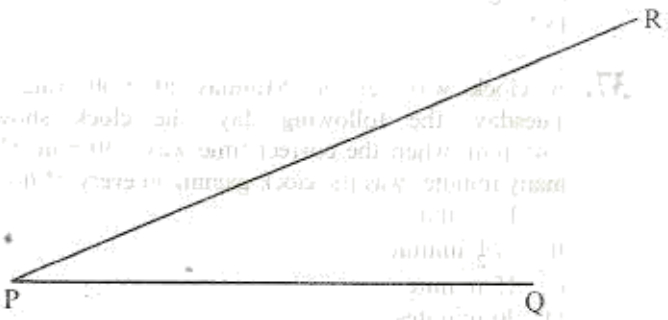
47. The population of a village is represented by the pie chart below.



If there were 300 girls, how many more boys than men were there?

A. 80
B. 100
C. 180
D. 50

48. Complete the construction of a parallelogram PQRS, where line PR is a diagonal.



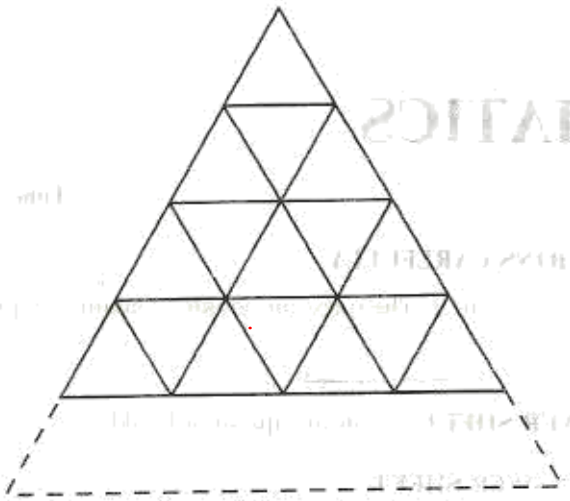
What is the length of line QS?

A. 6·7 cm
B. 7·0 cm
C. 3·8 cm
D. 9·1 cm

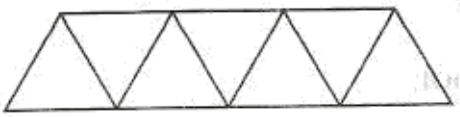
49. Which is the correct order of writing the fractions $\frac{3}{4}$, $\frac{7}{9}$, $\frac{4}{5}$, and $\frac{9}{11}$ from the largest to the smallest?

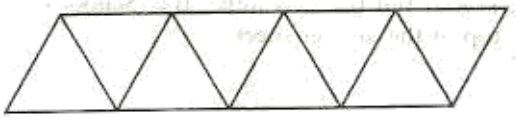
A. $\frac{3}{4}, \frac{4}{5}, \frac{7}{9}, \frac{9}{11}$
B. $\frac{9}{11}, \frac{7}{9}, \frac{4}{5}, \frac{3}{4}$
C. $\frac{9}{11}, \frac{7}{9}, \frac{3}{4}, \frac{4}{5}$
D. $\frac{9}{11}, \frac{4}{5}, \frac{7}{9}, \frac{3}{4}$

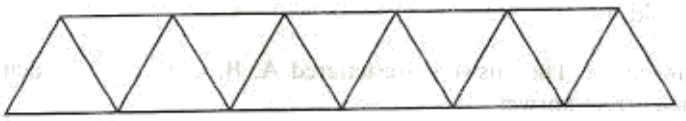
50.

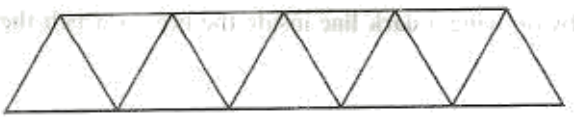


Which one of the shapes below would fit in the dotted space in the pattern above?

A. 

B. 

C. 

D. 

Working Space