CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

General Certificate of Education Examination

570 MATHEMATICS 1

JUNE 2014 **ORDINARY LEVEL**

Centre No. & Name	
Candidate No.	
Candidate Name	

570 MATHEMATICS 1: MULTIPLE CHOICE QUESTION PAPER

One and a half hours

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.

1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed "Ordinary Level – 570 Mathematics 1"
4. Insert the information required in the spaces above.
5. Insert the information required in the spaces provided on the answer sheet using your HB pencil: **Candidate Name, Exam Session, Subject Code, Centre Number and Candidate Number.** Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.

How to answer the questions in this examination

6. Answer ALL the 50 questions in this Examination. All questions carry equal marks.
7. **Calculators are allowed.**
8. Each question has FOUR suggested answers: A, B, C and D. Decide on which answer is correct. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.
   For example, if C is your correct answer, mark C as shown below:
   [A] [B] [C] [D]
9. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.
10. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
11. Do all rough work in this booklet, using, where necessary, the blank spaces in the question booklet.
12. Mobile phones are NOT allowed in the examination room.
13. **You must not take this booklet out of the examination room. All question booklets and answer sheets will be collected at the end of the examination.**

Go on to the next page

1. $\frac{1}{2}$ of $(\frac{2}{5}+\frac{3}{4})$ when simplified gives:

~~A~~ $\frac{23}{40}$
B $\frac{19}{20}$
C $\frac{10}{23}$
D $\frac{33}{20}$

2. In the number 5^3, 5 is called the:

~~A~~ Base
B Power
C Exponent
D Index

3. Given that $63_x = 45_{10}$, then the value of x is:

A 6
~~B~~ 7
C 8
D 10

$6x^1 + 3x^0 = 45$
$6x + 3 = 45$
$6x = 45 - 3$
$6x = 42$
$x = 7$

4. Arranging the fractions $\frac{1}{2}$, $\frac{2}{3}$, $\frac{1}{4}$ and $\frac{1}{6}$ in descending order gives:

A $\frac{1}{2}, \frac{2}{3}, \frac{1}{4}, \frac{1}{6}$
B $\frac{1}{6}, \frac{1}{4}, \frac{1}{2}, \frac{2}{3}$
C $\frac{2}{3}, \frac{1}{2}, \frac{1}{4}, \frac{1}{6}$
D $\frac{2}{3}, \frac{1}{6}, \frac{1}{2}, \frac{1}{4}$

5. The temperature of a room at 1 pm is 23°C and it increases by 5°C every 30 minutes. The temperature, in °C, at 3:30 pm will be:

A 48
B 43
C 25
D –2

6. Expressing 0.16 as a fraction gives:

A $\frac{2}{125}$
B $\frac{8}{25}$
~~C~~ $\frac{4}{25}$
D $\frac{16}{25}$

7. The number 69.82×10^{-2} written to two significant figures is:

A 0.07
B 0.069
~~C~~ 0.70
D 69

69.82×10^{-2}
$= 69.82 \times \frac{1}{10^2}$
$\frac{69.82}{100}$
$= 0.6982$

8. Cameroon Time is one hour ahead of Greenwich Mean Time (G.M.T.). When it is 17:50 hrs Cameroon Time, the G.M.T. is:

A 4:50 pm
B 16:50 pm
C 18:50 pm
D 6:50 pm

9. A car dealer sold a car to a lady at a discount of 10%. Given that she paid 1.800.000 FCFA, the original selling price, in FCFA, is:

A 1.600.000
B 1.620.000
C 1.980.000
D 2.000.000

10. 240.000FCFA is shared in the ratio 2:3:7. The largest share, in FCFA, is:

A 168.000
B 40.000
C 140.000
D 120.000

11. Given that the scale of a map is 1:25000 and the distance between two towns on the map is 4 cm, the actual distance between the two towns, in km, is:

A 1000
B 100
C 10
D 1

12.

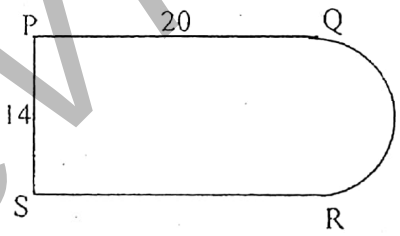


Figure 1

In Figure 1, PQ = 20 cm and PS = 14 cm
Taking $\Pi = \frac{22}{7}$ and given that the arc QR is a semi-circle, the perimeter of the composite figure is:

A 90 cm
B 76 cm
C 98 cm
D 68 cm

13. A cylinder has a base area of 75 cm^2 and height 10 cm. The quantity of water when the cylinder is half full is:

A 750 cm^3
B 375 cm^3
C 375 cm^2
D 750 cm^2

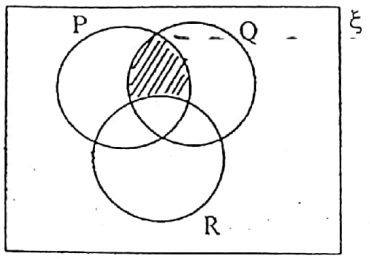
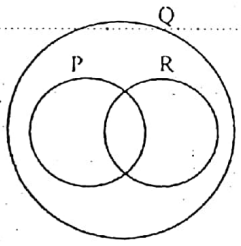


Figure 2

The shaded region in Figure 2 is described in set notation as:

A $P \cap Q$
B $R' \cap P$
C $P \cap Q \cap R'$
D $(P \cap Q) \cup R'$

15. P, Q and R are non empty sets such that all the elements of P are in Q, some elements of P are in R and some elements of R are in Q. The Venn diagram for the above information is:

A)


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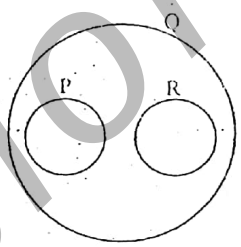

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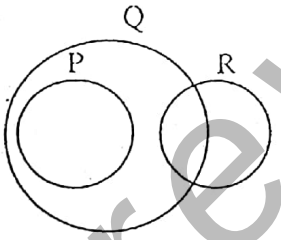

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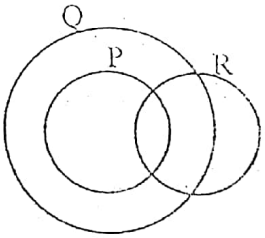


16. The universal set $\mathcal{U} = \{1, 2, 3, \ldots, 20\}$. Given that P = $\{x : x$ is a multiple of 3$\}$ and Q = $\{x : x$ is an even number$\}$ are subsets of $\mathcal{U}$. Then $n(P \cap Q)$ equals

A 6
B 3
C 2
D 1

17. Simplifying $2m - 3m + 2$ gives:

A $2 - m$
B $m - 2$
C $5m + 2$
D $m + 2$

18. The expression $9 - x^2$ when factorised completely gives:

A $(x - 3)(x + 3)$
B $9(1 - x^2)$
C $(3 - x)(3 + x)$
D $3(3 - x^2)$

19. $\frac{x+1}{3} - \frac{x-2}{2}$ expressed as a single fraction

A $\frac{-x-4}{6}$

B $\frac{5x-8}{6}$

C $\frac{8-x}{6}$

D $\frac{x-8}{6}$

20. The value of the expression $2x + 3y + 4xy$ for which $x = 2$ and $y = -4$ is:

A -16

B 48

C -40

D 24

21. Given that $2^{x+2} = 8^{\frac{1}{2}x}$, the value of x is:

A -4

B 2

C 3

D 4

22. The geometric progression in the following sequences is:

A $1, 2, 3, 4, \ldots$

B $2, 4, 5, 8, \ldots$

C $1, 2, 7, \ldots$

D $3, 6, 12, \ldots$

23. Given that y varies inversely as the square of x and that $y = 1$ when $x = 4$, then the value of y when $x = 2$ is:

A $\frac{1}{4}$

B $\sqrt{2}$

C 4

D 2

24. Given the inequality $6 - 2x < 18$, the range of values of x is:

A $x < 6$

B $x > -6$

C $x < -6$

D $x > 6$

25. Expressing x in terms of y in the equation $3x + y = 9x$ gives

A $\frac{y}{3}$

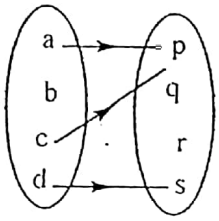
B $\frac{9-y}{3}$

C $\frac{y}{6}$

D $y + 3$

26. The function in the following arrow diagram is:

A)



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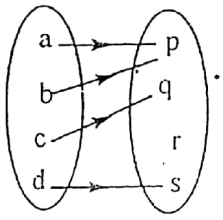

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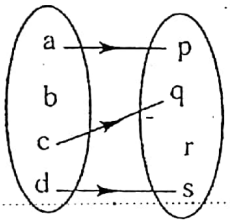

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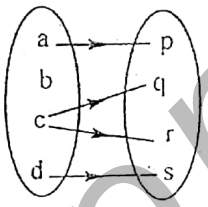


27. Given that $f : x \mapsto \frac{2x-1}{3}$, then f^{-1} expressed in a similar manner is:

A $f^{-1} : x \mapsto \frac{3x+1}{2}$

B $f^{-1} : x \mapsto \frac{3x-1}{2}$

C $f^{-1} : x \mapsto \frac{3(x-1)}{2}$

D $f^{-1} : x \mapsto \frac{2x-1}{3}$

28. Given that $f : x \mapsto 3x - 2$ and $g : x \mapsto 2x + 3$, then fog is:

A $6x + 11$

B $6x + 7$

C $6x + 1$

D $6x + 4$

29. Given that P = {a, b} and Q = {1, 2}, then P × Q equals

A {(1, a), (2, a), (1, b), (2, b)}

B {a, b, 1, 2}

C {(a, 1), (a,2), (b, 1), (b, 2)}

D {a, 2a, b, 2b}.

30. Two points P(1, -1) and Q(5, 7) are on a straight line. Given that M is the mid point of PQ, then the co-ordinates of M are:

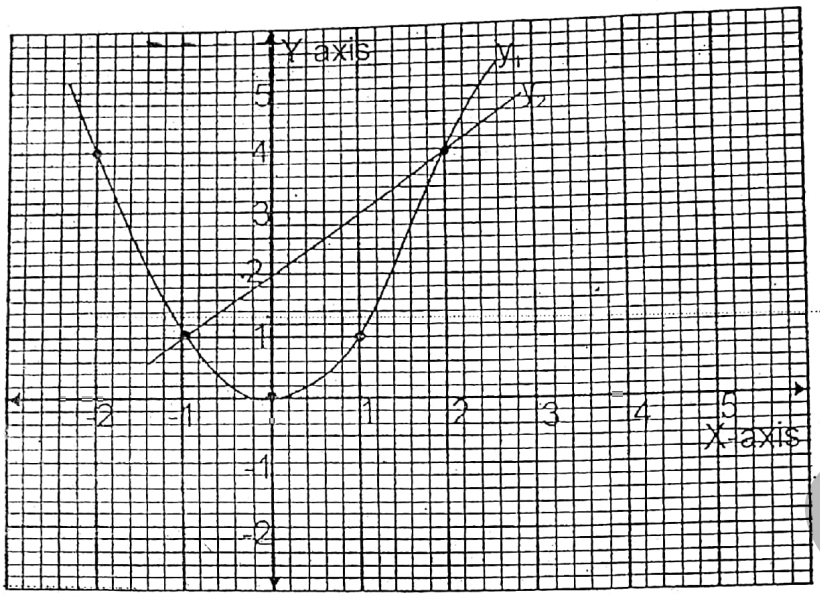
A (3, 3)

B (-2, -4)

C (-4, -8)

D (6, 6)

31.



The x – co-ordinate of the point where the two graphs $y = x^2 - 1$ and $y = x + 1$ meet such that x is a natural number is:

A -2
B -1
C 1
D 2

32. Given the equations of the lines L_1: $2x + y = 8$ and L_2: $6y - mx = 3$, the value of m when L_1 and L_2 are perpendicular is:

A 12
B 3
C -3
D -12

33. Two angles α and θ are such that $90° - \alpha = \theta$, then α and θ are:

A Supplementary
B Vertically opposite
C Corresponding
D Complementary

34.

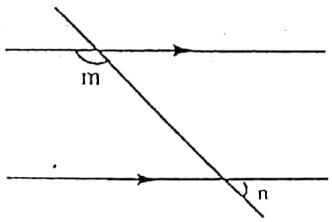


Figure 3

In figure 3, angle m is four times angle n. the value of angle m is:

A 72°
B 135°
C 144°
D 120°

35.

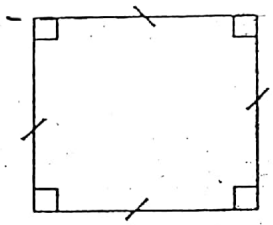


Figure 4

Figure 4 can be identified as:

A Parallelogram
B Kite
C Tetrahedron
D Trapezium

36.

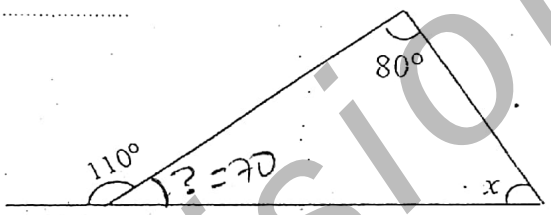


Figure 5

The value of angle x in figure 5 is:

A 70°
B 55°
C 40°
D 30°

37.

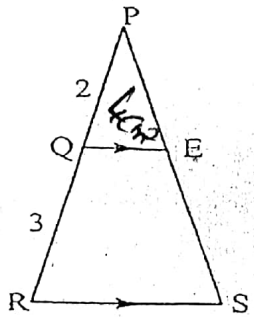


Figure 6

In Figure 6, the area of triangle PQE is 4 cm^2. The area of triangle PRS is:

A 9 cm^2
B 20 cm^2
C 25 cm^2
D 36 cm^2

38.

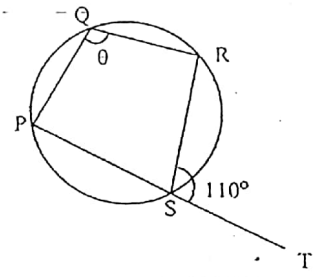


Figure 7

In figure 7, PQRS is a cyclic quadrilateral and angle TSR = 110°. The angle θ is:

A 55°
B 90°
C 110°
D 120°

39.

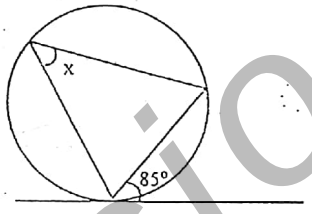


Figure 8

The angle marked *x* in figure 8 is:

A 85°
B 55°
C 45°
D 30°

40.

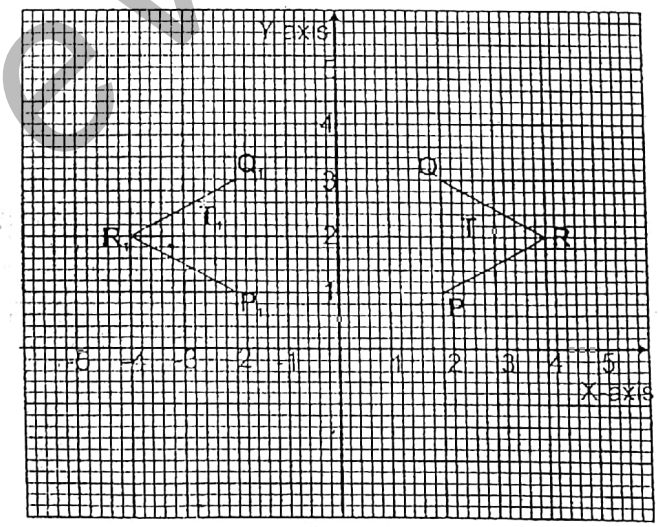


Figure 9

In Figure 9, the transformation that takes T to T_1 is a:

A Reflection in the *y-axis*
B Rotation about the origin
C Reflection in the *x-axis*
D Rotation of 180° about the origin

41. 10

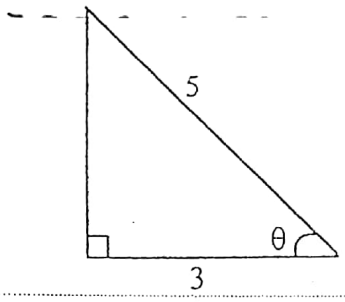


Figure 10

Figure 10 is a right-angled triangle. The value of sinθ is:

A $\frac{5}{4}$
B $\frac{3}{5}$
C $\frac{4}{5}$
D $\frac{4}{3}$

42.

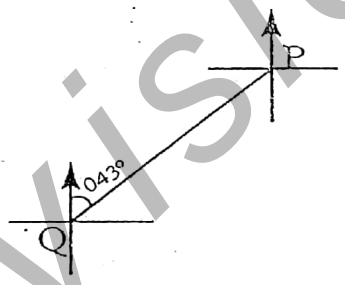


Figure 11

In Figure 11, the bearing of P from Q is 043°. The bearing of Q from P is:

A 043°
B 047°
C 227°
D 223°

43. Given that $\sin(90° - x) = \cos x$, then $\sin 28°$ is:

A cos 62°
B sin 62°
C cos 32°
D sin 32°

44. Given that $\overrightarrow{OP} = 2\mathbf{a}$ and $\overrightarrow{OQ} = 2\mathbf{b}$, then $\frac{1}{2}\overrightarrow{QP}$ is:

A $\mathbf{a} + \mathbf{b}$
B $\mathbf{a} - \mathbf{b}$
C $\mathbf{b} - \mathbf{a}$
D $\mathbf{p} + \mathbf{q}$

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45.

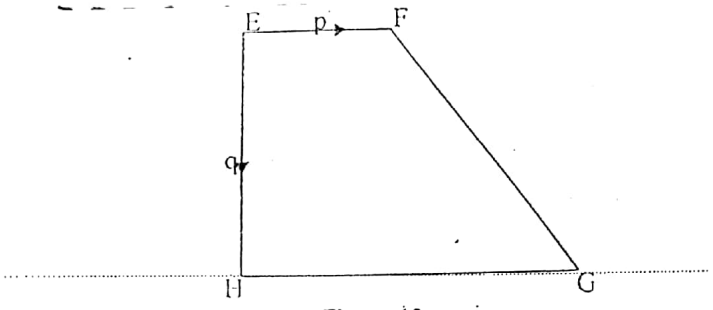

Figure 12

In Figure 12, EFGH is a trapezium in which $\overrightarrow{HG} = 2\overrightarrow{EF}$. Given that $\overrightarrow{EH} = \mathbf{q}$ and $\overrightarrow{EF} = \mathbf{p}$, then $\overrightarrow{FG}$ is:

A $3\mathbf{p} + \mathbf{q}$
B $\mathbf{q} - \mathbf{p}$
C $\mathbf{p} - \mathbf{q}$
D $\mathbf{p} + \mathbf{q}$

46. Given the vectors $\underline{U} = 4\mathbf{i} + 3\mathbf{j}$ and $\underline{V} = -\mathbf{i} + \mathbf{j}$, then the modulus of $\underline{U} + \underline{V}$ is:

A 25
B $\sqrt{29}$
C 5
D $\sqrt{41}$

47.

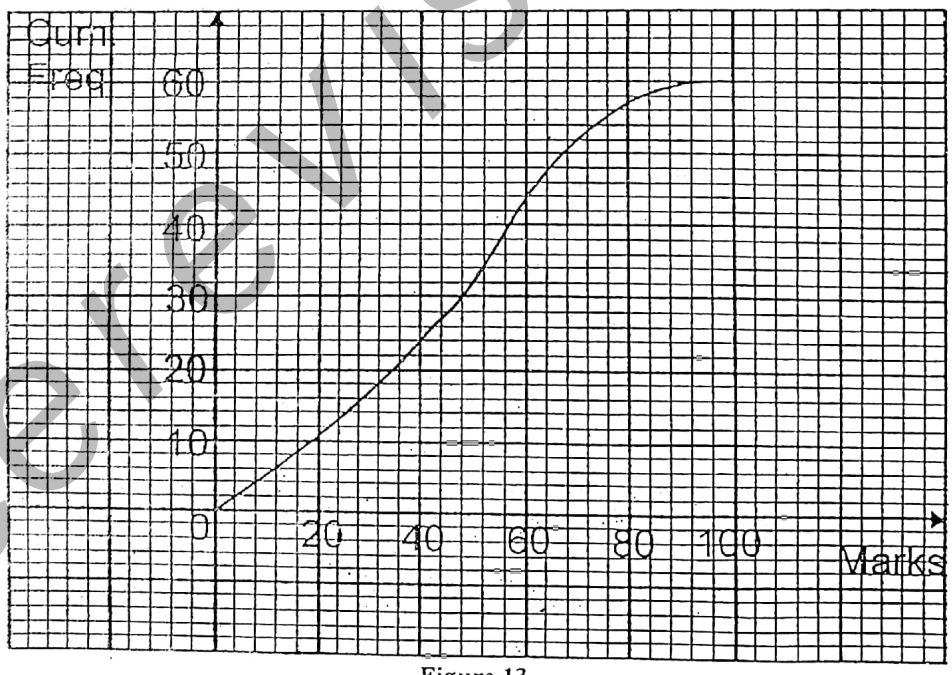

Figure 13

The graph in figure 13 is a cumulative frequency curve of the marks of 60 students in an examination. The median mark is:

A 26
B 60
C 30
D 48

48.

x	1	4	5	6	7
f	2	3	2	2	1

Figure 14

Given the frequency table in figure 14, the mode is:

A 3

B 4

C 4.5

D 5

---

49. A number is chosen at random from the set S = {1, 2, 3, ..., 10} The probability of picking a prime number is:

A $\frac{1}{2}$

B $\frac{3}{5}$

C $\frac{2}{5}$

D $\frac{3}{10}$

S = 10

(P) = 4 < 2, 3, 5, 7 >

P $\frac{4}{10} = 2/5$

1 is not a prime number

50.

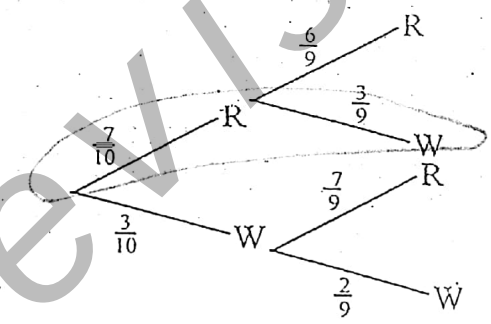

Figure 15

The tree diagram in figure 15 represents the probability of drawing Red (R) and White (W) balls from a bag. The probability that the first ball is red and the second white is:

A $\frac{1}{15}$

B $\frac{7}{30}$

C $\frac{7}{15}$

D $\frac{14}{15}$

$\frac{7}{10} \times \frac{3}{9} = 7/30$

STOP

NOW GO BACK AND CHECK YOUR WORK