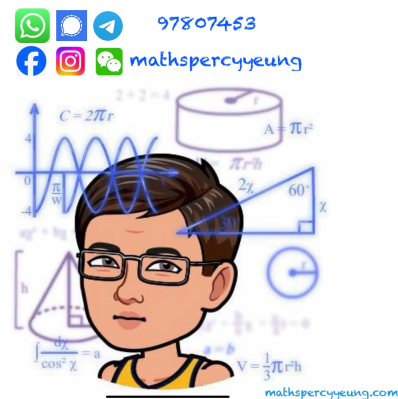


2025 – 2026

FINAL EXAMINATION

S.4 MATHEMATICS Compulsory Part

PAPER 2



Name: _____

Full Marks: 41

S.4 _____ ()

Time Allowed: 1 hour 15 minutes

INSTRUCTIONS

1. Write your name, class and class number in the spaces provided on both the question paper and the Multiple-Choice Answer Sheet.
2. This paper consists of TWO sections: Section A and Section B.
3. All questions carry equal marks.
4. **ANSWER ALL QUESTIONS.** You are advised to use an HB pencil to mark all the answers on the Answer Sheet, so that wrong marks can be completely erased with a clean rubber. You must mark the answers clearly, otherwise you will lose marks if the answers cannot be captured.
5. You should mark only **ONE** answer for each question. If you mark more than one answer, you will receive **NO MARKS** for that question.
6. No marks will be deducted for wrong answers.
7. The diagrams in this paper are not necessarily drawn to scale.
8. Only calculators with the “**H.K.E.A. APPROVED**” or “**H.K.E.A.A. APPROVED**” label are allowed in the examination.

There are 26 questions in Section A and 15 questions in Section B.

The diagrams in this paper are not necessarily drawn to scale.

Choose the best answer for each question.

Section A

1. $\frac{(8x^2)^8}{(4x^{-3})^5} =$

- A. $2x$.
- B. $2x^{31}$.
- C. $2^{14}x$.
- D. $2^{14}x^{31}$.

2. $x^2 - xy - 6y^2 + 2x + 4y =$

- A. $(x + 2y)(x + 3y - 2)$.
- B. $(x + 2y)(x - 3y + 2)$.
- C. $(x - 2y)(x + 3y - 2)$.
- D. $(x - 2y)(x - 3y + 2)$.

3. $\frac{2n}{3n-2} - \frac{3n}{2n-3} =$

- A. $\frac{5n^2}{(3n-2)(2n-3)}$.
- B. $\frac{5n^2}{(3n-2)(3-2n)}$.
- C. $\frac{5n^2+12n}{(3n-2)(2n-3)}$.
- D. $\frac{5n^2+12n}{(3n-2)(3-2n)}$.

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4. If $\frac{x+1}{a} = \frac{x-1}{b}$, then $x =$

A. $\frac{b-a}{a+b}$,

B. $\frac{a+b}{b-a}$,

C. $\frac{a+b}{a-b}$,

D. $\frac{a-b}{a+b}$.

5. Let $f(x) = 3x^2 - 8x - k$, where k is a constant. If $f(5) + f(-5) = 90$, find k .

A. -60

B. -30

C. 30

D. 60

6. A sum of \$2019 is deposited at an interest rate of 1.5% per annum for 5 years, compounded quarterly. Find the interest correct to the nearest dollar.

A. \$38

B. \$151

C. \$156

D. \$157

7. Let m be a constant. If $(x + 2m)(x - 3m) = (2x + m)(x - 3m)$, then

A. $x = m$.

B. $x = -m$.

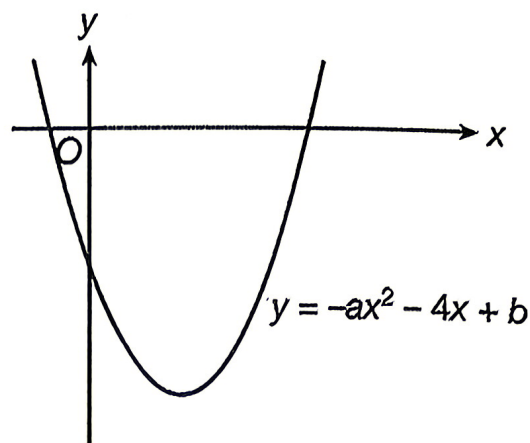
C. $x = m$ or $x = 3m$.

D. $x = -m$ or $x = 3m$.

8. The figure shows the graph of $y = -ax^2 - 4x + b$, where a and b are constants. Which of the following is/are true?

- I. $a < 0$
- II. $b < 0$
- III. $ab > 1$

- A. I only
- B. II only
- C. I and II only
- D. I, II and III



9. Let $f(x) = x^{11} + 3x - h$, where h is a constant. If $f(x)$ is divisible by $x - 1$, find the remainder when $f(x)$ is divided by $x + 1$.

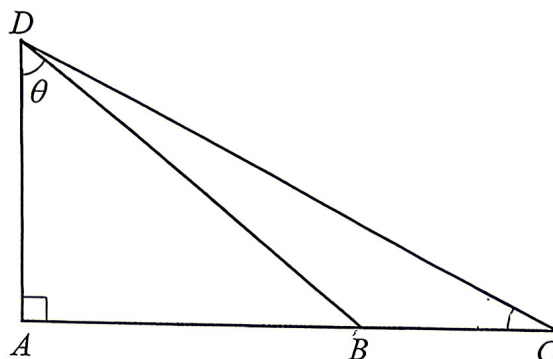
- A. -8
- B. -7
- C. 0
- D. 4

10. When a polynomial $f(x)$ is divided by $x - k$, the remainder is R . Let $g(x) = f(x) + R$. If $g(x)$ is divided by $x - k$, the remainder is

- A. $-R$.
- B. 0 .
- C. R .
- D. $2R$.

11. In the figure, ABC is a straight line. $\frac{AC}{BD} =$

- A. $\frac{\sin \theta}{\tan \phi}$.
- B. $\frac{\cos \theta}{\tan \phi}$.
- C. $\frac{\tan \phi}{\sin \theta}$.
- D. $\frac{\tan \phi}{\cos \theta}$.



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12. $\frac{\tan(180^\circ + \theta)}{\sin 210^\circ} + \frac{\cos 300^\circ}{\tan(90^\circ - \theta)} =$

- A. 0.
- B. $-\frac{3}{2}\tan\theta$.
- C. $-\frac{5}{2}\tan\theta$.
- D. $-\frac{3}{2\tan\theta}$.

13. Let $f(x) = 2x^2 + mx + 13$, where $m > 0$. If the x -coordinate of the vertex of the graph of $y = f(x)$ is -5 , then $m =$

- A. -20 .
- B. 10 .
- C. 20 .
- D. 26 .

14. The scale of a map is $1 : 3000$. If the area of a park on the map is 9 cm^2 , then the actual area of the park is

- A. 81 m^2 .
- B. 270 m^2 .
- C. 8100 m^2 .
- D. $27\,000 \text{ m}^2$.

15. Let $g(x)$ be a polynomial. When $g(x)$ is divided by $x + 2$, the remainder is -8 . If $g(x)$ is divisible by $x - 2$, find the remainder when $g(x)$ is divided by $x^2 - 4$.

- A. $2x - 4$
- B. $2x + 4$
- C. $-2x - 4$
- D. $-2x + 4$

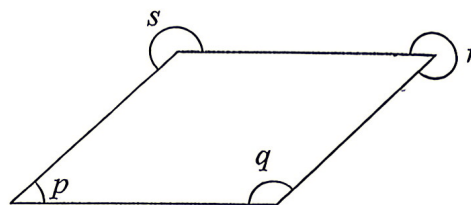
16. The figure shows a parallelogram. Which of the following must be true?

I. $p + q = 180^\circ$

II. $r - p = 270^\circ$

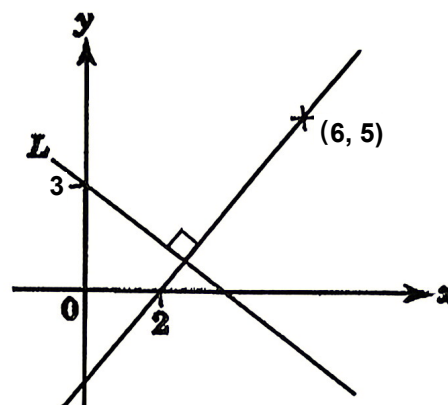
III. $s = p + 180^\circ$

- A. I and II only
 B. I and III only
 C. II and III only
 D. I, II and III



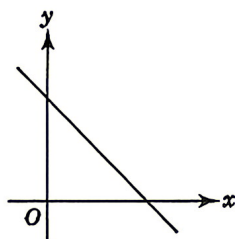
17. In the figure, find the equation of the straight line L .

- A. $4x - 5y + 15 = 0$
 B. $4x + 5y - 15 = 0$
 C. $5x - 4y + 12 = 0$
 D. $5x + 4y - 12 = 0$

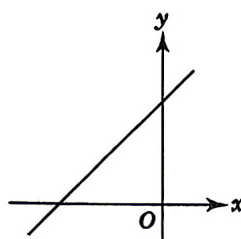


18. If $a < 0$, which of the following shows the graph of the straight line $ax + 3y - 5 = 0$?

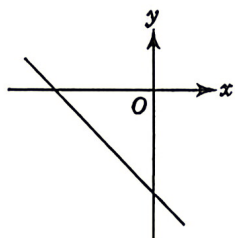
A.



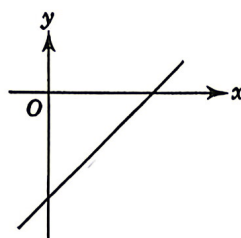
B.



C.



D.



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19. Consider the following data:

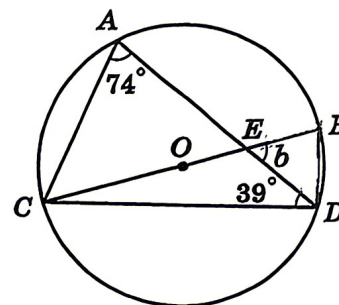
43 43 62 68 73 76 89 91 p q r s

If the mean and the mode of the above data are 66 and 56 respectively, then the median of the above data is

- A. 65.
- B. 70.
- C. 79.
- D. 83.

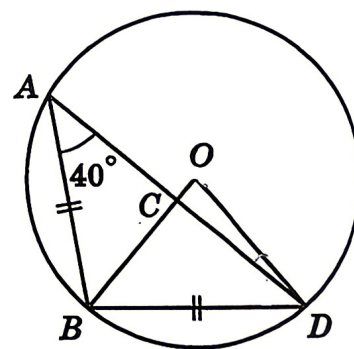
20. In the figure, O is the centre. CEB is the diameter and AED is a straight line. Find b .

- A. 55°
- B. 58°
- C. 60°
- D. 62°



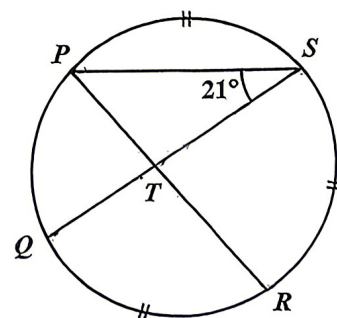
21. In the figure, O is the centre. Given that $AB = BD$ and $\angle BAD = 40^\circ$, find $\angle ODC$.

- A. 5°
- B. 10°
- C. 15°
- D. 20°



22. In the figure, PR cuts QS at T . If $\widehat{PS} = \widehat{RS} = \widehat{QR}$ and $\angle PSQ = 21^\circ$, then $\angle PTQ =$

- A. 21° .
- B. 42° .
- C. 53° .
- D. 74° .



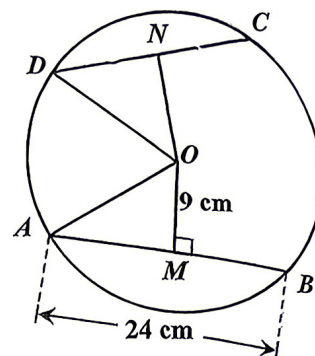
23. In the figure, O is the centre of the circle. AMB is a straight line. $AB = 24$ cm, $OM = 9$ cm, $CN = DN = 10$ cm and $OM \perp AB$. Which of the following is/are true?

I. The radius of the circle is 15 cm.

II. $OM > ON$

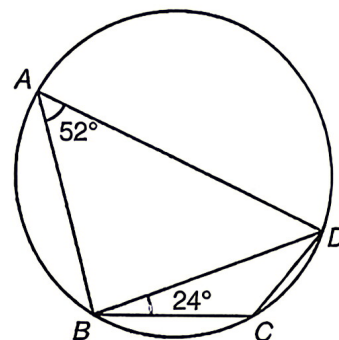
III. $\angle OAM < \angle ODN$

- A. I only
B. II only
C. I and III only
D. II and III only



24. In the figure, $\widehat{AB} : \widehat{BC} = 3 : 2$. It is given that $\angle BAD = 52^\circ$ and $\angle CBD = 24^\circ$. Find $\angle ADB$.

- A. 28°
B. 36°
C. 38°
D. 42°



25. If θ lies in quadrant III, which of the following is/are true?

I. $\tan \theta \tan(\theta - 90^\circ) < 0$

II. $\sin \theta \cos(\theta + 90^\circ) > 0$

III. $\sin(\theta - 90^\circ) \cos \theta \tan(\theta + 90^\circ) > 0$

- A. I only
B. I and III only
C. II and III only
D. I, II and III

26. Find the maximum value of $y = \frac{2}{5 - 3 \sin 2x}$.

- A. 1
B. $\frac{2}{3}$
C. $\frac{2}{5}$
D. $\frac{1}{4}$

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SECTION B

27. The L.C.M. of uv^2w , $9u^2v^3$ and $12v^2w^5$ is

- A. v^2 .
- B. $u^3v^7w^6$.
- C. $36u^2v^3w^5$.
- D. $108u^3v^7w^6$.

28. Three polynomials $f(x)$, $g(x)$ and $h(x)$ are given. The L.C.M. of $f(x)$ and $g(x)$ is $2(x+1)^3(2x+1)^2$. The L.C.M. of $f(x)$, $g(x)$ and $h(x)$ is $4(x+1)^4(2x+1)^2$. Which of the following may be $h(x)$?

- A. $2(x+1)^2(2x+1)^2$
- B. $2(x+1)^4(2x+1)$
- C. $4(x+1)^4$
- D. $4(x+1)^4(2x+1)^4$

29. If $\log 3 = x$ and $\log 5 = y$, express $\log 7.5$ in terms of x and y .

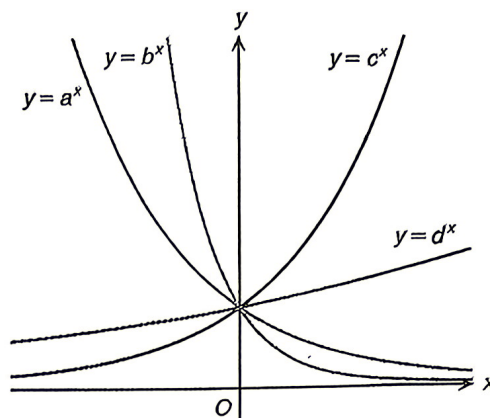
- A. $x + 2y - 1$
- B. $x - 2y - 1$
- C. $2x + y - 1$
- D. $2x - y - 1$

30. If x is a positive number, then $x\sqrt{x \cdot \sqrt[3]{x}} =$

- A. $x^{\frac{5}{6}}$.
- B. $x^{\frac{7}{6}}$.
- C. $x^{\frac{11}{6}}$.
- D. $x^{\frac{5}{3}}$.

31. The figure shows the graphs of $y = a^x$, $y = b^x$, $y = c^x$ and $y = d^x$, where a, b, c and d are positive constants. Which of the following is true?

- A. $a < b < c < d$
- B. $b < a < c < d$
- C. $a < b < d < c$
- D. $b < a < d < c$



32. If $F(2x - 1) = 4x^2 - 8x$, then $F(x) =$

- A. $x^2 - 2x - 3$.
- B. $x^2 - 6x + 5$.
- C. $4x^2 - 4x - 3$.
- D. $4x^2 - 12x + 5$.

33. If a is a real number, then the real part of $(a + 2i^5)(2 + i^{15})$ is

- A. $2a$.
- B. $a - 2$.
- C. $2a - 2$.
- D. $2a + 2$.

34. Let $z = \frac{(2+a)i}{1+i} - (7-a)i$. If a and z are real numbers, then $a - z =$

- A. 1.
- B. 2.
- C. 3.
- D. 4.

35. For $0^\circ \leq \theta < 360^\circ$, how many roots does the equation $5 \cos^2 \theta - \cos \theta - 4 = 0$ have?

- A. 2
- B. 3
- C. 4
- D. 5

36. Which of the following is the least?

- A. 1001^{6000}
- B. 2002^{5750}
- C. 3003^{5500}
- D. 4004^{5250}

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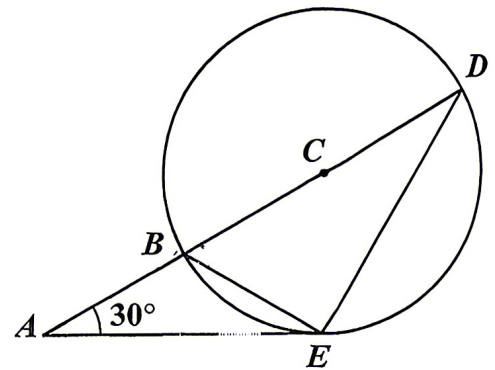
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37. Solve $\log_4 (4x - 16) = 2 + \log_4 (x - 8)$.

- A. $\frac{10}{3}$
- B. 8
- C. 9
- D. $\frac{28}{3}$

38. In the figure, C is the centre of the circle. $ABCD$ is a straight line. AE is the tangent to the circle at E . If $\angle DAE = 30^\circ$, then $\angle DBE =$

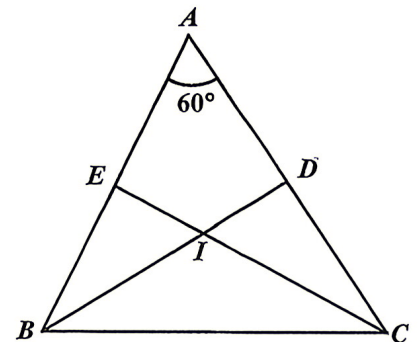
- A. 40° .
- B. 50° .
- C. 60° .
- D. 70° .



39. In the figure, ADC and AEB are straight lines. BD and CE are the angle bisectors of $\angle ABC$ and $\angle ACB$ respectively. BD and CE intersect at I . If $\angle BAC = 60^\circ$, which of the following are true?

- I. A, D, I and E are concyclic.
- II. AI is the angle bisector of $\angle BAC$.
- III. $DI = EI$

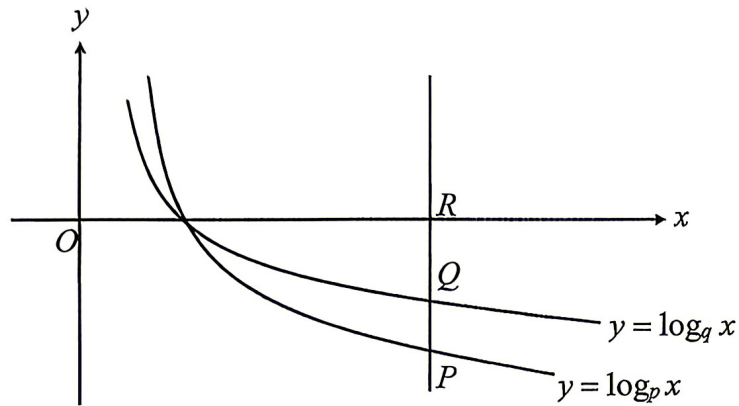
- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II and III



40. If p and q are distinct real numbers, and $\begin{cases} p(p-4) = 7 \\ q(q-4) = 7 \end{cases}$, find the value of $p(q-4) + q(p-4)$.

- A. -30
- B. -2
- C. 2
- D. 14

41. The figure shows the graph of $y = \log_p x$ and the graph of $y = \log_q x$ on the same rectangular coordinate system, where p and q are positive constants. If a vertical line cuts the graph of $y = \log_p x$, the graph of $y = \log_q x$ and the x -axis at the points P , Q and R respectively, which of the following is/are true?



- I. $q < 1$
 - II. $p < q$
 - III. $\frac{PQ}{QR} = \log_p \frac{q}{p}$
- A. I only
- B. II only
- C. I and III only
- D. II and III only

End of Paper