CANDIDATE – PLEASE NOTE!

PRINT your name on the line below and return this booklet with your answer sheet. Failure to do so may result in disqualification.

FORM TP 2026–045

TEST CODE **01254010**

MAY JUNE 2026

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE®

EXAMINATION

ADDITIONAL MATHEMATICS

Paper 01 – General Proficiency

1 hour 30 minutes

04 JUNE 2026 (a.m.)

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This test consists of 45 items. You will have 1 hour and 30 minutes to answer them.
2. In addition to this test booklet, you should have an answer sheet.
3. Each item in this test has four suggested answers lettered (A), (B), (C), (D). Read each item you are about to answer and decide which choice is best.
4. A list of formulae is provided on page 2 of this booklet.
5. On your answer sheet, find the number which corresponds to your item and shade the space having the same letter as the answer you have chosen. Look at the sample item below.

Sample Item

$(4^{-2})^2 \div \left[\frac{1}{16}\right]^2 =$

(A) 4^{-2}
(B) 4^{-1}
(C) 4^{0}
(D) 4^{2}

Sample Answer

(A) (B) ● (D)

The best answer to this item is "4^0", so (C) has been shaded.

6. If you want to change your answer, erase it completely before you fill in your new choice.
7. When you are told to begin, turn the page and work as quickly and as carefully as you can. If you cannot answer an item, go on to the next one. You may return to that item later.
8. You may use silent, non-programmable calculators to answer items.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

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LIST OF FORMULAE

Arithmetic series

$$T_n = a + (n-1)d \qquad S_n = \frac{n}{2}[2a + (n-1)d]$$

Geometric series

$$T_n = ar^{n-1} \qquad S_n = \frac{a(r^n - 1)}{r - 1} \qquad S_\infty = \frac{a}{1-r}, -1 < r < 1 \text{ or } |r| < 1$$

Circle

$$x^2 + y^2 + 2fx + 2gy + c = 0 \qquad (x+f)^2 + (y+g)^2 = r^2$$

Vectors

$$\hat{\mathbf{v}} = \frac{\mathbf{v}}{|\mathbf{v}|} \qquad \cos\theta = \frac{\mathbf{a} \cdot \mathbf{b}}{|\mathbf{a}| \bullet |\mathbf{b}|} \qquad |\mathbf{v}| = \sqrt{(x^2 + y^2)} \text{ where } \mathbf{v} = x\mathbf{i} + y\mathbf{j}$$

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Trigonometry

$$\sin(A \pm B) \equiv \sin A \cos B \pm \cos A \sin B$$

$$\cos(A \pm B) \equiv \cos A \cos B \mp \sin A \sin B$$

$$\tan(A \pm B) \equiv \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$$

Kinematics

$$v = u + at \qquad v^2 = u^2 + 2as \qquad s = ut + \frac{1}{2}at^2 \qquad v = \frac{dx}{dt} = \dot{x}$$

$$a = \frac{d^2x}{dt^2} = \frac{dv}{dt} = \ddot{x}$$

A003

Calculus

$$\frac{d}{dx}(ax+b)^n = an(ax+b)^{n-1} \qquad \frac{d}{dx}\sin ax = a\cos ax$$

$$\frac{d}{dx}\cos ax = -a\sin ax \qquad s = \int v\,dt \qquad v = \int a\,dt$$

Statistics

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n} = \frac{\sum_{i=1}^{n} f_i x_i}{\sum_{i=1}^{n} f_i}, \qquad s^2 = \frac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{n-1} = \frac{\sum_{i=1}^{n} f_i x_i^2}{\sum_{i=1}^{n} f_i} - (\bar{x})^2$$

Probability

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

1. The expression $x - 3$ is a factor of

(A) $3x^4 - x^2 - 42$
(B) $2x^3 + 6x^2 + x + 3$
(C) $x^3 - 3x^2 - 5x + 15$
(D) $3x^4 - 8x^3 - 3x^2 + 1$

2. Given that $x + 2$ is a factor of $f(x) = 2x^3 - 3x^2 - 5x + p$, then p is equal to

(A) -18
(B) -2
(C) 18
(D) 33

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3. The minimum value of the expression $4x^2 - 8x - 5$ is

(A) -9
(B) -5
(C) 1
(D) 8

4. Given that $f(x) = 1 - 4x - 2x^2$, then $f(x)$ can be expressed in the form

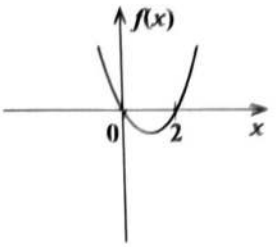
(A) $2(x + 1)^2 - 3$
(B) $3 - 2(x - 1)^2$
(C) $3 - 2(x + 1)^2$
(D) $3 - (2x + 1)^2$

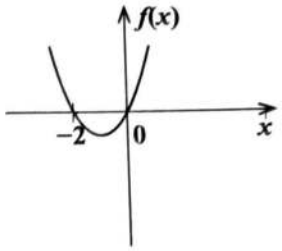
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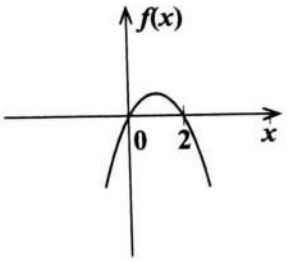
5. If the roots of the equation $4x^2 - 16x + 11 = 0$ are a and β, then the value of $\sqrt{a + \beta}$ is

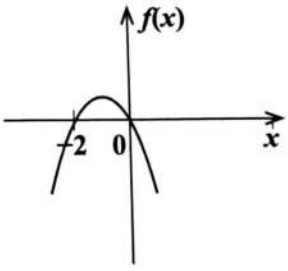
(A) 2
(B) 4
(C) 8
(D) 16

6. Which of the following graphs represents $f(x) = x(2 + x)$?

(A)


(B)


(C)


(D)


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7. The set of values of x for which $\frac{2x-1}{x-1} \geq 0$ is

(A) $x > 1$

(B) $x \geq -\frac{1}{2}$

(C) $x \leq \frac{1}{2}$ or $x > 1$

(D) $x \geq -\frac{1}{2}$ and $x \geq 1$

8. The set of values of x for which $3x^2 + 5x < 2$ is

(A) $x > -2$

(B) $x > -\frac{1}{3}$

(C) $-\frac{3}{5} < x < 0$

(D) $-2 < x < \frac{1}{3}$

9. The expression $\frac{\sqrt{5}-1}{1+\sqrt{5}}$ when simplified is equal to

(A) $\frac{1}{3}(3-\sqrt{5})$

(B) $\frac{1}{2}(\sqrt{5}-3)$

(C) $\frac{1}{3}(\sqrt{5}-3)$

(D) $\frac{1}{2}(3-\sqrt{5})$

10. $\frac{2^{\frac{1}{2}}}{8^{\frac{1}{3}}}$ simplifies to

(A) $\frac{1}{4}$

(B) $\frac{1}{2}$

(C) $\sqrt{2}$

(D) $\frac{1}{\sqrt{2}}$

11. Given that $\log_p X = 6$ and $\log_p Y = 4$, the value of $\log_p\left(\frac{X}{Y}\right)$ is

(A) 2

(B) 10

(C) $\log_p 2$

(D) $\frac{\log_p 6}{\log_p 4}$

12. If $8^{2x-1} = 32^{x+1}$, then $x =$

(A) -5
(B) 2
(C) 5
(D) 8

13. In a geometric progression, the fifth term is 45 and the seventh term is 5. The SIXTH term is

(A) 9
(B) 15
(C) 25
(D) 40

14. The nth term of the series $128 + 64 + 32 + \ldots$ is

(A) 64^{n-1}
(B) 128×2^{n}
(C) 256×2^{-n}
(D) $128 - 2n$

15. The expression $\sum_{r=1}^{5} (-1)^{r} (3)^{r+1} =$

(A) 1089
(B) 729
(C) −183
(D) −549

16. The line through the points Q(h, 2) and R(4, 8) is parallel to the line with equation $2x + y - 10 = 0$. The value of h is

(A) −7
(B) 2
(C) 1
(D) 7

17. The point (2, 3) is at one end of a diameter of a circle whose equation is

$x^2 + y^2 - 10x + 2y + 1 = 0.$

The coordinates of the point on the other end of the diameter are

(A) (8, −1)
(B) (8, −5)
(C) (−12, −1)
(D) (−12, −5)

18. The points of intersection of the line with equation $y - x - 2 = 0$ and a circle with equation $x^2 + y^2 = 10$ are

(A) (3, 1) and (−1, −3)
(B) (3, −1) and (1, −3)
(C) (−3, −1) and (−1, −3)
(D) (−3, −1) and (1, 3)

19. The vector a is given as $8\mathbf{i} + 15\mathbf{j}$. A unit vector parallel to vector a is

(A) $16\mathbf{i} + 30\mathbf{j}$
(B) $184\mathbf{i} + 345\mathbf{j}$
(C) $\frac{1}{17}(8\mathbf{i} + 15\mathbf{j})$
(D) $\frac{7}{17}(8\mathbf{i} + 15\mathbf{j})$

20. The position vectors of A and B relative to an origin O are $\begin{pmatrix} 2 \\ 5 \end{pmatrix}$ and $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$ respectively.

The acute angle AOB is given by

(A) $\cos^{-1}\left[\frac{1}{\sqrt{(290)}}\right]$
(B) $\cos^{-1}\left[\frac{11}{\sqrt{(290)}}\right]$
(C) $\cos^{-1}\left[\frac{\sqrt{11}}{\sqrt{(290)}}\right]$
(D) $\cos^{-1}\left[\frac{-1}{\sqrt{(290)}}\right]$

21. The position vector of the point P relative to an origin O is given as $\mathbf{p} = 5\mathbf{i} + 2\mathbf{j}$ and the position vector of Q relative to an origin O is given as $\mathbf{q} = -4\mathbf{i} + 10\mathbf{j}$.

Which of the following statements is true?

(A) **p** and **q** are parallel.
(B) **p** and **q** are perpendicular.
(C) The acute angle between **p** and **q** is 60°.
(D) The acute angle between **p** and **q** is 45°.

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22. $\frac{4\pi}{5}$ radians, converted to degrees, is

(A) 72°
(B) 144°
(C) 180°
(D) 288°

23. If $\sin\theta = \frac{5}{13}$ and θ is **obtuse**, then $\tan\theta =$

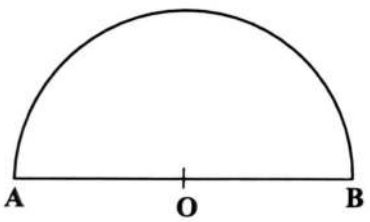
(A) $\frac{12}{13}$

(B) $\frac{5}{12}$

(C) $\frac{-12}{13}$

(D) $\frac{-5}{12}$

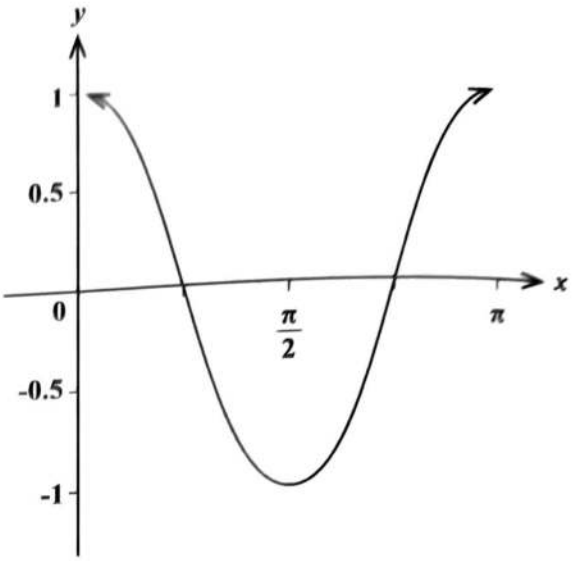
Item **24** refers to the following diagram of a semi-circle.



24. If the area of the semi-circle is 32π, what is the length of the arc connecting Points A and B?

(A) 4π
(B) 8π
(C) 16π
(D) 32π

Item **25** refers to the following graph.



25. The graph shown above represents the function

(A) $\cos x$
(B) $\cos 2x$
(C) $\frac{1}{2}\cos x$
(D) $\cos\left[\frac{1}{2}x\right]$

26. If $\pi < \theta < 2\pi$ and $2\cos\theta = \sqrt{3}$, then θ is

(A) $\frac{11\pi}{6}$
(B) $\frac{5\pi}{3}$
(C) $\frac{7\pi}{4}$
(D) $\frac{3\pi}{2}$

27. If $\sin(x + 20°) = \cos x$, then the value of x is

(A) $70°$
(B) $60°$
(C) $45°$
(D) $35°$

28. The roots of the equation $6\sin^2 x + 7\sin x - 5 = 0$ are

(A) $\frac{\pi}{6}, \frac{5\pi}{6}$
(B) $\frac{\pi}{6}, \frac{7\pi}{6}$
(C) $\frac{\pi}{6}, \frac{9\pi}{6}$
(D) $\frac{\pi}{6}, \frac{11\pi}{6}$

29. $\frac{2\sin x \cos x}{\cos^2 x - \sin^2 x} =$

(A) $\frac{2}{\cos x - \sin x}$
(B) $2\sin x \cos x$
(C) $\tan 2x$
(D) $\tan x$

30. $\sin\left[\frac{\pi}{2} - x\right] + \cos\left[x + \frac{\pi}{2}\right] =$

(A) $\tan \pi$
(B) $\sin x - \cos x$
(C) $\cos x - \sin x$
(D) $1 - \sin x - \cos x$

31. Given that $y = (5 - 2x)^5$, then $\frac{dy}{dx} =$

(A) $-5(5 - 2x)^4$
(B) $5(5 - 2x)^4$
(C) $10(5 - 2x)^4$
(D) $-10(5 - 2x)^4$

32. $\frac{d}{dx} x\sin 2x =$

(A) $\sin 2x + 2x\cos 2x$
(B) $-\cos 2x - 2\sin 2x$
(C) $\sin 2x - 2x\cos 2x$
(D) $x\cos 2x + \sin 2x$

33. The area of a square increases at a rate of $10\ \text{cm}^2\,\text{s}^{-1}$. The rate of increase of its side when it has a length of 2 cm is

(A) $0.2\ \text{cms}^{-1}$
(B) $2.0\ \text{cms}^{-1}$
(C) $2.5\ \text{cms}^{-1}$
(D) $5.0\ \text{cms}^{-1}$

34. The point $P(1, 1)$ lies on the curve $y = \frac{3x - 2}{2x - 1}$. The gradient of the tangent at Point P is

(A) 1
(B) $\frac{3}{2}$
(C) 5
(D) -1

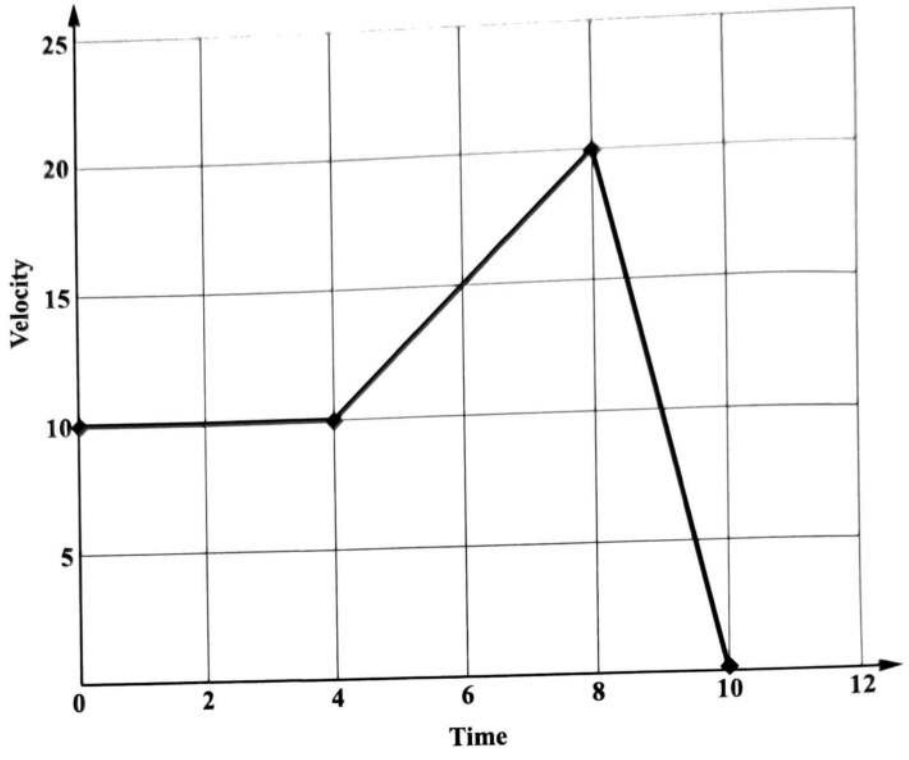
35. The curve C has the equation $y = f(x)$. C has a stationary point at $(-1, 2)$. If $f''(x) = \frac{6}{x^4} + 2$, then $(-1, 2)$ is

(A) an optimum point
(B) a point of inflexion
(C) a minimum turning point
(D) a maximum turning point

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Item **36** refers to the following graph which shows the journey of a boy, where time is given in seconds and velocity in ms $^{-1}$.



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36. During the journey there is a stage when the boy accelerates. The value of the acceleration is

(A) $-10.0\ \text{ms}^{-2}$
(B) $2.5\ \text{ms}^{-2}$
(C) $3.5\ \text{ms}^{-2}$
(D) $20.0\ \text{ms}^{-2}$

A003

37. If $y = 3x^2 + \cos x$, then $\int y\,dx =$

(A) $x^3 - \sin x + c$

(B) $x^3 + \sin x + c$

(C) $6x - \sin x + c$

(D) $3x^3 - \sin x + c$

38. If $\int_1^4 f(x)\,dx = 6$, then $\int_1^4 4f(x)\,dx + 5 =$

(A) 9
(B) 11
(C) 29
(D) 44

39. The value of a for which $\int_0^a (x^2 - 5)\,dx = \frac{50}{3}$ is

(A) 5
(B) 6
(C) 8
(D) 10

40. The region **R** is enclosed by the x-axis, the curve $y = -x^2 + 2$ and the lines $x = 0$ and $x = 1$. The area of **R** is

(A) 1
(B) $\frac{5}{3}$
(C) 2
(B) $\frac{7}{3}$

Item **41** refers to the following stem and leaf diagram which shows the heights, in cm, of 12 students.

11	**8 9 9**	
12	**4 5**	**Key**
13	**0 1 2**	**11|8 means 118 cm**
14	**0 0**	
15	**1 5**	

41. The value of the interquartile range is

(A) 9.5 cm
(B) 18.5 cm
(C) 121.5 cm
(D) 130.5 cm

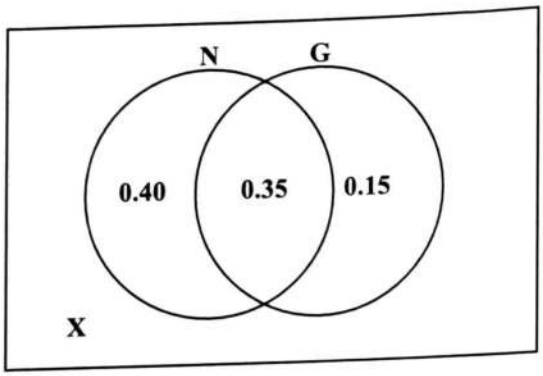
42. A survey was conducted among 20 doctors and the following information was collected: $\bar{x} = 6$ and $\Sigma f(x - \bar{x})^2 = 115$.

The variance of the data is

(A) 2.20
(B) 2.30
(C) 2.40
(D) 5.75

Items **43** and **44** refer to the following Venn diagram.

There are 120 students in a school's music club. The Venn diagram shows the probabilities that a randomly selected student plays the piano (N) or guitar (G).



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43. What is the value of X?

(A) 0.10
(B) 0.35
(C) 0.90
(D) 1.00

44. What is P(N | G)?

(A) 0.10
(B) 0.40
(C) 0.47
(D) 0.70

A003

45. A bag contains 15 balls numbered 1 through 15. What is the probability of selecting a ball that has an odd number and is divisible by 5?

(A) $\frac{2}{15}$

(B) $\frac{1}{5}$

(C) $\frac{7}{15}$

(D) $\frac{8}{15}$

END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.