

MARINHA DO BRASIL

SERVIÇO DE SELEÇÃO DO PESSOAL DA MARINHA



**Concurso Público de Admissão ao Colégio Naval
CPACN/2026**

**NÃO ESTÁ AUTORIZADA A UTILIZAÇÃO DE
MATERIAL EXTRA**

1º Dia – Prova de Matemática e Inglês

Questão 1

Considere um triângulo de lados AB, AC e BC, respectivamente, 2, $\sqrt{3} + 1$ e $\sqrt{6}$ em metros. Encontre os ângulos internos, em graus, respectivamente e assinale a opção correta.

- (A) 45, 70, 65.
- (B) 35, 75, 70.
- (C) 45, 80, 55.
- (D) 35, 85, 60.
- (E) 45, 60, 75.

Questão 2

O governo de um estado, visando monitorar a eficácia de políticas públicas de segurança, modelou a evolução anual do número de homicídios dolosos em duas regiões metropolitanas, A e B, entre os anos de 2020 e 2028. Os modelos são funções quadráticas que representam a quantidade de homicídios em cada região em função do ano t , com $t = 0$ correspondendo a 2020.

Para a região A, o modelo é $H_A(t) = -t^2 + 8t + 100$, válido para $t \in [0,8]$.

Para a região B, o modelo é $(t) = at^2 + bt + c$, cujos coeficientes são tais que:

Em 2020 ($t = 0$), o número de homicídios em B era 10% maior que o da região A.

Em 2022 ($t = 2$), o número de homicídios em B era igual ao de A.

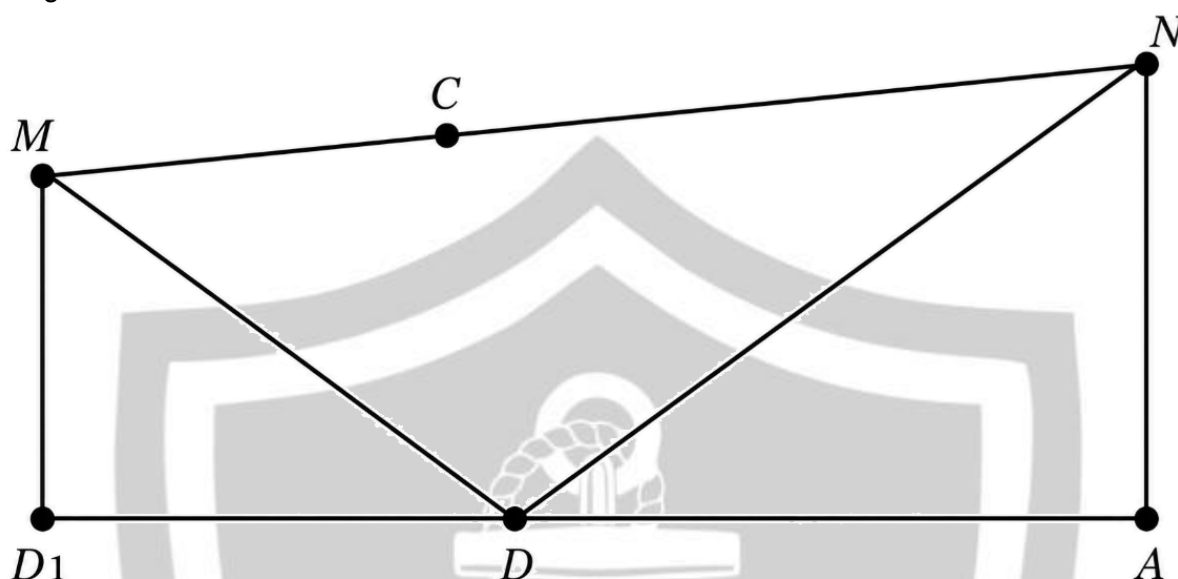
Em 2024 ($t = 4$), o número de homicídios em B era 15% menor que o de A.

Além disso, um estudo socioeconômico aponta que a violência em uma região é considerada “crítica” quando a taxa de homicídios ultrapassa 110. As autoridades pretendem implementar um programa de intervenção na região que primeiro atingir esse patamar após 2020, pretendem também encerrar o programa quando a taxa cair para menos de 100 novamente. Com base nos modelos, em que ano cada região atinge o pico de homicídios e qual o valor máximo em cada uma?

- (A) (2024 em A e Pico - 116 homicídios) - (2021 em B e Pico - 113 homicídios)
- (B) (2024 em A e Pico - 112 homicídios) - (2020 em B e Pico - 115 homicídios)
- (C) (2023 em A e Pico - 115 homicídios) - (2021 em B e Pico - 113 homicídios)
- (D) (2028 em A e Pico - 110 homicídios) - (2021 em B e Pico - 112 homicídios)
- (E) (2024 em A e Pico - 116 homicídios) - (2028 em B e Pico - 113 homicídios)

Questão 3

Examine a figura abaixo.

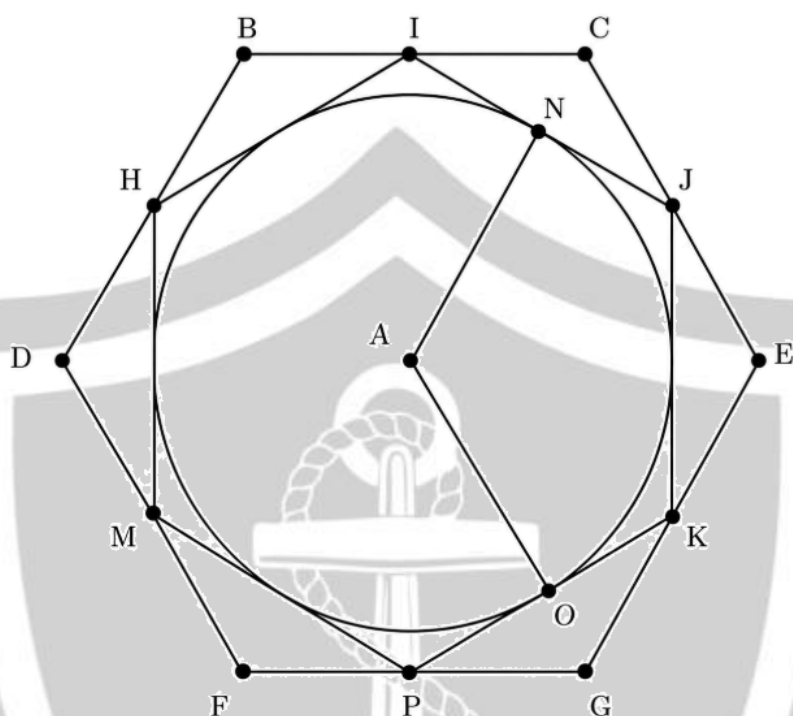


As Torres verticais de rádio da Marinha têm extremidades superiores nos pontos M e N, e bases no solo nos pontos D_1 e A, respectivamente. As alturas das Torres são $MD_1 = a_1$ e $NA = a_2$. A onda de rádio propaga-se ao longo do segmento MN, enquanto a onda refletida no ponto D do solo segue a trajetória M-D-N. Sabe-se que os segmentos DM e DN formam, em D, ângulos iguais com o solo, sendo os ângulos MDD_1 e NDA iguais a 30° . Além disso, $a_1 = 2$ m e $a_2 = 4$ m. O ponto C pertence ao segmento MN e divide-o na razão $\frac{MC}{CN} = \frac{2}{3}$. Assim, determine o comprimento DC e assinale a opção correta.

- (A) $\frac{15\sqrt{13}}{3}$
- (B) $\frac{2\sqrt{13}}{3}$
- (C) $\frac{3\sqrt{13}}{5}$
- (D) $\frac{2\sqrt{5}}{5}$
- (E) $\frac{4\sqrt{13}}{5}$

Questão 4

Considere a figura abaixo.



Considere que os hexágonos da figura acima são regulares e os pontos I, J, K, P, M, H, N, O são médios. Sabendo que o lado do hexágono BCEGFD é 8, calcule a razão entre a área do pentágono ANJKO e o hexágono BCEGFD e assinale a opção correta.

- (A) $1/8$
- (B) $1/6$
- (C) $1/4$
- (D) $1/3$
- (E) $1/2$

Questão 5

Um aspirante da Escola Naval, envolvido com Olimpíadas de Matemática, estava resolvendo uma equação na forma a seguir:

$$\phi x^2 - x - \frac{3}{2}\phi - 1 = 0$$

Sabe-se que $\phi \in \mathbb{R}$ e x é a variável real. O aspirante foi desafiado a determinar o valor de ϕ para que uma das raízes seja menor que 2 e a outra maior que 2. Nessas condições, o valor de ϕ encontra-se no intervalo na opção correta.

- (A) $[0,5]$
- (B) $[0,6]$
- (C) $(0,5)$
- (D) $(0,6/5)$
- (E) $(0,5]$

Questão 6

Em um cenário de instabilidade geopolítica, conflitos entre países têm provocado oscilações significativas nos preços de *commodities* estratégicas. Entre elas, o petróleo ocupa o papel central, influenciando diretamente os custos de transportes e produção industrial em uma economia globalizada. Segundo dados do *Trading Economics*, o preço do barril de petróleo, que ao final de 2025 era de U\$ 64 (sessenta e quatro dólares), atingiu cerca de U\$ 100 (cem dólares) em março de 2026, em razão de tensões internacionais. Suponha que, a partir desse valor máximo, o preço do barril passe a sofrer duas reduções percentuais sucessivas e de mesmo valor, de modo que, ao final dessas reduções, retorne ao preço observado ao final de 2025. Nessas condições, o valor aproximado de cada redução percentual é:

- (A) 18
- (B) 20
- (C) 24
- (D) 25
- (E) 30

Questão 7

Considere a parábola P definida por:

$$y = x^2 - 4x + k$$

e a reta R definida por:

$$y = 2x + 1$$

Sabe-se que a reta R intersecta a parábola P em dois pontos distintos A e B, cuja distância entre si é igual a $2\sqrt{5}$. O valor do parâmetro k é.

- (A) 5
- (B) 6
- (C) 7
- (D) 8
- (E) 9

Questão 8

Durante uma campanha de incentivo ao uso do PIX, que é um sistema de pagamento e transferência instantânea, uma *fintech* contratou uma equipe de agentes financeiros para cadastrar chaves PIX de clientes. Sabe-se que 8 agentes, trabalhando 5 horas por dia, durante 6 dias, conseguiram cadastrar 4.800 chaves. Para acelerar o processo, a *fintech* pretende cadastrar 9.000 chaves em apenas 4 dias, com os agentes trabalhando 7 horas por dia. Considerando que todos os agentes têm a mesma produtividade, quantos agentes, no mínimo, serão necessários para cumprir essa meta?

- (A) 15
- (B) 16
- (C) 17
- (D) 18
- (E) 19

Questão 9

Seja f uma função real definida por:

$$f(x) = \sqrt{\frac{4x^2 - 4x - 24}{3x - 6}}$$

Determine o domínio de f e assinale a opção correta.

- (A) $(-\infty, -2] \cup [2, 3]$
- (B) $[-2, 2) \cup [3, +\infty)$
- (C) $(-2, 2) \cup (3, +\infty)$
- (D) $(-\infty, -2] \cup (2, 3]$
- (E) $[-2, 2] \cup [3, +\infty)$

Questão 10

Observe a identidade abaixo:

$$\frac{10x^2 - 5x - 4}{x^3 - 3x^2 + 2} \equiv \frac{m}{x} + \frac{n}{x-1} + \frac{k}{x-2}$$

Os valores de m , n e k que tornam verdadeira essa identidade são tais que:

- (A) $m - n + k = 87$
- (B) $4m - 2n + 5k = 59$
- (C) $m - n + k = -87$
- (D) $m - 2n - k = 81$
- (E) $m + 2n + k = 100$

Questão 11

Seja a expressão:

$$E = \frac{(0,49)^{0,5} + 6 \cdot (0,333 \dots)^2 - \frac{2}{3} \div \frac{4}{9}}{0,25 \cdot 40 - (1,222 \dots)}$$

Qual é a razão entre a soma dos algarismos do denominador pela soma dos algarismos do numerador do resultado da expressão?

- (A) $2/3$
- (B) $7/3$
- (C) $8/3$
- (D) $9/2$
- (E) $9/4$

Questão 12

Seja o número natural:

$$N = 2^{2024} + 3^{2024}$$

Determine o resto da divisão de N por 5 e assinale a opção correta.

- (A) 0
- (B) 1
- (C) 2
- (D) 3
- (E) 4

Questão 13

O feminicídio é o assassinato de uma mulher em razão de sua condição de sexo feminino. Em um determinado estado, observou-se que a taxa de feminicídio (número de vítimas por 100 mil mulheres) evoluiu de acordo com os dados na tabela abaixo:

Ano	Taxa (por 100 mil mulheres)
2018	1,36
2022	1,68

Admita que a taxa T (em 100 mil mulheres) varia linearmente com o tempo t , onde t representa o número de anos após 2018 (ou seja, $t = 0$ corresponde a 2018). Com base no modelo, estime a taxa de feminicídio para o ano de 2025 e assinale a opção correta.

- (A) 1,92
- (B) 1,80
- (C) 1,79
- (D) 1,39
- (E) 1,29

Questão 14

Analise as afirmativas abaixo e assinale a seguir a opção correta.

I- Se $\frac{(x-2)^2(x+2)}{\sqrt{4x^2-8x+4}} = \frac{(x-2)^2(x+2)}{2(x-1)}$ é sempre verdadeiro.

II- Seja $f(x) = 4 - 3x - x^2$, então: $\frac{f(3+h)-f(3)}{h} = -9 - h = -(h + 9)$.

III- Num polígono regular, as diagonais que passam pelo seu centro só são válidas se o polígono tiver o número de lados par.

IV- Considere a equação: $x^2 - 3x + 2 = \sqrt{x^2 - 3x + 4}$, é possível afirmar que a soma das raízes que satisfazem a equação vale 1.

V- A expressão: $1^2 + 2^2 + 3^2 + 4^2 + 5^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$, para qualquer seja $n \in \mathbb{N}^*$.

- (A) Apenas a afirmativa III é verdadeira
(B) Apenas as afirmativas I, II são verdadeiras
(C) Apenas as afirmativas III, V são verdadeiras
(D) Apenas as afirmativas I, II, III, V são verdadeiras
(E) As afirmativas I, II, III, IV e V são verdadeiras

Questão 15

Considere um triângulo equilátero ABC de lado L cm. Sobre os lados BC, CA e AB, marcam-se os pontos D, E e F, respectivamente, de modo que os lados $BD = CE = AF = x$, com $0 < x < L$. Obtenha, em função de L, a expressão para o lado do triângulo DEF, de modo a determinar os valores de x para que a área de DEF seja igual à metade da área de ABC e assinale a opção correta.

- (A) $\frac{L(2,5-\sqrt{3})}{6}$, $\frac{L(2,5+\sqrt{3})}{6}$
(B) $\frac{L(4-\sqrt{3})}{6}$, $\frac{L(4+\sqrt{3})}{6}$
(C) $\frac{L(2-\sqrt{3})}{6}$, $\frac{L(2+\sqrt{3})}{6}$
(D) $\frac{L(1-\sqrt{3})}{6}$, $\frac{L(1+\sqrt{3})}{6}$
(E) $\frac{L(3-\sqrt{3})}{6}$, $\frac{L(3+\sqrt{3})}{6}$

Questão 16

Em uma pesquisa de mercado, realizada com 300 consumidores, investigou-se o uso de três produtos A, B e C. A distribuição a seguir representa os consumidores que utilizam esses produtos, e algumas regiões no diagrama de Venn estão indicadas por expressões algébricas em função de uma constante positiva k. Todas as regiões assumem valores inteiros não negativos. Sendo assim e com base nessas informações, quantos consumidores utilizam exatamente dois dos produtos?

Distribuição:

- Somente A: $3k+2$;
- Somente B: $2k+5$;
- Somente C: $k+8$;
- Somente A e B: $4k-3$;
- Somente A e C: $2k+1$;
- Somente B e C: $k+4$;
- Somente A, B e C: $k-1$;
- Nenhum dos três: 18.

- (A) 125
- (B) 130
- (C) 135
- (D) 140
- (E) 145

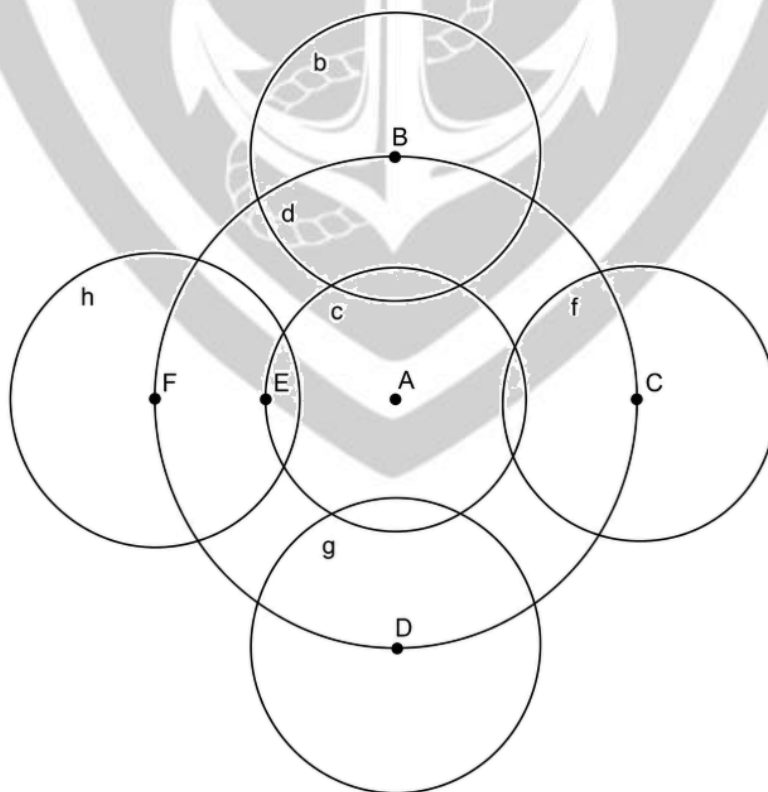
Questão 17

Considere o número binário $N = (1101)_2$. Seja M o número binário obtido acrescentando algarismo zero à direita da representação de N , e seja P o número binário obtido acrescentando o algarismo 1 (um) à esquerda da representação de N . Determine o valor decimal de $M + P$ e assinale a opção correta.

- (A) 55
- (B) 56
- (C) 57
- (D) 58
- (E) 59

Questão 18

Considere a figura abaixo.



Na figura, apresentada acima, as circunferências de centros A, B, C, D e F têm o mesmo raio r . Sabe-se que os pontos B, C, D e F pertencem à circunferência de centro A, de modo que $AB = AC = AD = AF = r$. Cada uma das circunferências de centros B, C, D e F intersecta a circunferência de centro A, formando quatro regiões comuns congruentes. Determine, em função de r , a soma das áreas dessas quatro regiões comuns e assinale a opção correta.

- (A) $(34\pi - 3)r^2$
(B) $\left(\frac{8\pi}{3} - 2\sqrt{3}\right)r^2$
(C) $\left(\frac{2\pi}{3} - \frac{\sqrt{3}}{2}\right)r^2$
(D) $\left(\frac{8\pi}{3} - \sqrt{3}\right)r^2$
(E) $(2\pi - \sqrt{3})r^2$

Questão 19

Um observador está no topo de uma torre vertical de altura h , situada sobre uma planície horizontal infinita. Deseja-se determinar até que distância máxima d , medida sobre o solo, ele consegue enxergar um ponto P, sabendo que a Terra é uma esfera perfeita de raio R . Desprezando a refração da luz e considerando que a linha de visada é tangente à superfície terrestre no ponto mais distante visível, determine uma expressão aproximada para d , admitindo que $h \ll R$ (aqui o símbolo indica que h é muito menor que R). Sendo assim, assinale a opção que apresenta corretamente a distância máxima d que o observador consegue enxergar. (considere que ao passar um plano que intersecta a esfera ao meio forme um círculo).

- (A) $d \cong \sqrt{Rh}$
(B) $d \cong \sqrt{2Rh}$
(C) $d \cong \sqrt{R^2 + 2Rh}$
(D) $d \cong \sqrt{2R^2h}$
(E) $d \cong 2\sqrt{Rh}$

Questão 20

Considere o sistema linear abaixo:

$$\begin{cases} (2k - 1)x + (k + 2)y = 3 \\ 4x + (2k + 4)y = 6 \end{cases}$$

Nesse sistema k é um número real. Ao encontrar o valor de k , como fração irredutível em $k = \frac{a}{b}$, para que o sistema seja possível e indeterminado, calcule $\frac{1}{\sqrt{a}-\sqrt{b}}$ e assinale a opção correta.

- (A) $\sqrt{2} - \sqrt{3}$
- (B) $\sqrt{3} + \sqrt{2}$
- (C) $\sqrt{5} - \sqrt{2}$
- (D) $\sqrt{3} - \sqrt{5}$
- (E) $\sqrt{3} - \sqrt{2}$



Read Text I to answer questions 21 and 22.

How AI Is Reshaping Advertising for the First Time in a Decade

By Robert Derow, Justin Kuron, James Reiner, and Mark Abraham

Blog Post January 19, 2026

For the past decade, the mechanics of advertising have remained fairly consistent. Brands compete for attention across search results, social feeds, video and retail media - optimizing for clicks, impressions, and conversion rates. While the surfaces have evolved, the basic model hasn't changed: people _____, platforms _____, and advertising _____ the journey.

Artificial intelligence is changing the equation. Instead of static messages placed around content, we're entering an era in which the interface itself understands intent, synthesizes options, and introduces commercial choices directly inside a conversation. This isn't just a new marketing channel - it's a fundamentally new advertising environment, with new mechanics, incentives, and rules of competition. Marketing organizations must be prepared to rapidly test, learn, and - most importantly - scale what works across this growing ecosystem.

Adapted from <https://www.bcg.com/x/the-multiplier/how-ai-is-reshaping-modern-advertising>

Questão 21

Mark the option that correctly fills in the gaps in the text, respectively.

- (A) navigates; intermediates; monetizes.
- (B) navigates; intermediate; monetize.
- (C) navigate; intermediates; monetizes.
- (D) navigates; intermediates; monetize.
- (E) navigate; intermediate; monetizes.

Questão 22

Mark the option which is NOT correct about the "new advertising environment", compared to the traditional model.

- (A) It can synthesize options and present commercial choices within a conversation.
- (B) It relies on static messages placed around content to capture the users' attention.
- (C) It requires that marketing organizations restructure the mechanics of advertising.
- (D) It introduces new mechanics, incentives, and rules of competition among the brands.
- (E) It has been reshaped by AI, with an interface that understands consumers' intentions.

Read text II to answer questions 23 to 28.

Bruna Moura nearly died trying to get to the Olympics. Now she's back on her skis.

By Nic Zaccardi

Published February 23, 2023

Back in 2011, Moura, then 17, was a promising mountain biker. She was coached by an Olympian, competed on the junior World Cup circuit and strove to represent Brazil at the 2016 Rio Games. But a medical exam revealed a heart condition that required surgery and, ultimately, led her to cross-country skiing. The winter sport became more appealing for a few reasons.

During her recovery, Brazilian sports officials gifted her equipment for roller skiing, which cross-country skiers use for summer training. She took to it. It was also difficult to get sponsors back to return to mountain biking. Plus, her mountain bike coach was actually a two-sport Olympian, switching back and forth between mountain bike and cross-country skiing.

In 2015, Moura competed at the world junior championship in biathlon. Later that year, she entered her first international race in cross-country skiing, where Olympic qualifying is slightly easier for non-traditional winter sports nations.

She competed in her first world championship in cross-country skiing in 2017 and by January 2022 was in contention for the second and last Brazil women's Olympic berth. At the last qualifying event in Switzerland, she finished her race and called her partner, Dutchman Pascal Luiten, who tracked the live results and told her she earned the Beijing Olympic spot. "I started crying and jumping," Moura said. "It was really, really, let's say a fantastic day."

Two days later, Moura tested positive for COVID-19 with symptoms that were not life-threatening. She quarantined in Austria for 10 days and changed her itinerary to get from Europe to China. On Jan. 27th, she could leave. She booked a van through a car service to take her, and her ski equipment, about four hours north to Munich, where she planned to stay a few nights before flying to Beijing. Moura woke up around 5 a.m. to wipe down the room in the house where she quarantined. The van arrived at 7. She learned from text messages that the driver was a Russian named Yevgeny who lived in Berlin.

She remembers details about that morning that altered their estimated arrival time. Yevgeny at first parked behind the house, but she needed him to be in the front where her three large bags were. The GPS had to correct after they took the wrong street leaving the Austrian town.

Yevgeny drove fast enough that Moura became afraid and instinctively looked for the seatbelt. She said that, growing up in Brazil, she always made sure that everybody had their belts on before starting the car. On this morning, she did not initially follow her own advice. Minutes into the trip, she looked at the loose belt and thought: "Do I wear it, or not because the way he's driving?" she recalled a year later. "Maybe if I do not wear it, I have time to react, open the door and jump. That's crazy thoughts of course. But that's what I thought at the moment. ... Then I put it on and tried to sleep."

About an hour later, Moura woke up. The van was still. "I was scared," she said. "I opened my eye, and I remember thinking to myself, 'You were sleeping. You are waking up now.' ... I saw so many people around me, and I did not understand anything because I did not remember anything when I saw them. I got scared, like what the hell is happening here? And then all the pain started, and it was hard to breathe."

Images showed the van up against a guard rail. The windshield and everything below it was mangled, the van's insides and one tire spilled into the side of a two-lane road. On the other side of the road, a large truck lay on its side.

A medical helicopter took Moura to a hospital. She broke an arm in three places, had three broken ribs, lung damage and a broken left foot. When she was stabilized, they brought her to a room. She remembers an old woman entered and told her what had happened, a few hours after the accident. "Until then, I didn't know anything," Moura said. "You had a collision with a truck," Moura was told. "There was nothing to do for the driver. He died with the impact."

After two surgeries, she was discharged the next week and taken 11 hours by ambulance taxi to the Netherlands, where she lives with Luiten. They rented a hospital bed and put it in the living room. The first night was the worst. "All night it was just moaning from pain," said Luiten, who slept on a couch in the room. "That did not stop until the morning." She was prescribed stronger medication the next day. That's about the time the Olympics began. "I wanted to watch it," she said. "At first, it was not easy. The Opening Ceremony was like a punch in my face."

Luiten said they watched the Games on TV all day every day. "It was mostly a matter of trying to enjoy the fact that people were visiting her, caring about her, and there were sports to watch as a distraction," he said. "Trying to get her mind off the pain, especially at night."

She spent most of her time in bed for those first three weeks, the rest in a wheelchair. She began walking, first with crutches, and then, two months after the accident, on her own. By August, she began roller skiing again. She was determined to ski on snow, though her foot still hurt. "I was already aiming at 2026," she said. "Yeah, it hurts like hell now, but it will not stay like this forever."

Also that summer, she began working at a bike shop and then taking kickboxing classes. Co-workers learned her story and set up a Gofundme page to aid with the costs of becoming an international athlete again.

In the fall, Moura ran for the first time since the accident. Late last month, she skied on snow for the first time in a year. Then two weeks ago, she traveled back to Austria, to the same place where she quarantined a year ago. On a bus, she passed by the site of the accident and shared the video on her Instagram story. The 2026 Winter Olympic cross-country skiing races will be about 50 miles south of where last year's tragedy occurred.

Moura said she asks herself daily why she continues this pursuit, which began as a mountain biker more than a decade ago. "When I decided to become an athlete, I decided that I wanted to get to the highest I could," she said. "When you are an athlete, the highest you can get is the Olympics."

Adapted from <https://www.nbcsports.com/olympics/news/bruna-moura-cross-country-skiing-brazil>

Questão 23

It is correct to state that Moura:

- (A) was 17 when she competed in her 1st world championship in cross-country skiing.
- (B) couldn't compete in the 2022 Olympics, but went to Beijing as a spectator.
- (C) gave up competing in mountain biking because she had a heart attack.
- (D) returned to skiing on snow one year after her car accident.
- (E) had to search for another coach after changing sports.

Questão 24

Say if the statements below are true (T) or false (F) about the athlete Bruna Moura and then mark the correct option.

- () She tested positive for COVID-19 shortly before the 2022 Olympics.
 - () She represented Brazil at the 2016 Rio Games, racing cross-country skiing.
 - () She had an accident in 2022, in which her coach did not survive.
 - () She was not wearing a seat belt when the car accident happened.
- (A) (F) (T) (T) (T)
(B) (T) (F) (F) (F)
(C) (T) (F) (F) (T)
(D) (F) (F) (T) (T)
(E) (T) (T) (F) (F)

Questão 25

All statements are correct about the text EXCEPT:

- (A) The tragic accident involved the van Bruna was in and a truck.
- (B) Yevgeny, who was the van's driver, was speeding in the day of the accident.

- (C) The accident happened while Bruna was heading to the Munich Olympics.
- (D) People on the internet funded Moura to get back as an international athlete.
- (E) Luiten is Moura's partner and lives with her in the Netherlands.

Questão 26

Mark the option in which the bare infinitive and past participle forms, in parenthesis, of the underlined verbs are correct, respectively.

- (A) "Yevgeny drove fast enough that Moura became afraid (...)" (drive - droven)
- (B) "A medical helicopter took Moura to a hospital." (take - taken)
- (C) "About an hour later, Moura woke up." (wake - woken)
- (D) "Then, I put it on and tried to sleep." (put - putted)
- (E) "He died with the impact." (dye - died)

Questão 27

Which sentence extracted from the text contains an adjective in the comparative degree?

- (A) "She was prescribed stronger medication the next day."
- (B) "It was mostly a matter of trying to enjoy the fact that people were visiting her (...)."
- (C) "(...) she continues this pursuit which began as a mountain biker more than a decade ago."
- (D) "When you are an athlete, the highest you can get is the Olympics."
- (E) "She spent most of her time in bed for those first three weeks (...)."

Questão 28

In the extract, "Images showed the van up against a guard rail. The windshield and everything below it was mangled, the van's insides and one tire spilled into the side of a two-lane road. On the other side of the road, a large truck lay on its side." (9th paragraph), the pronoun "its" refers to:

- (A) the van.
- (B) a large truck.
- (C) a two-lane road.
- (D) a guard rail.
- (E) one tire.

Read text III to answer questions 29 and 30.

Cross-country skiing: “It means everything. It’s the whole universe to me,” says Bruna Moura

At the age of 31, Brazilian Bruna Moura realized her Olympic dream. 74th in the sprint qualifier and 99th in the individual skate, far from the top places, she was nonetheless greeted by a standing ovation at the finish. “I’ve been waiting for this for so long,” she told Sportbladet after the sprint qualifier. “It means everything. It’s the whole universe to me.”

For the Olympic debut, the Brazilian slipped a photo of her best friend, who died suddenly of a pulmonary embolism, under her wetsuit. “We spoke one day. The next day, she was gone... It’s still difficult... She said she’d be there when I realized my dream. It was my way of having her by my side.”

More than just a result, Milan/Cortina marks the culmination of a lifetime of fighting. “We did it,” she concludes.

Adapted from <https://www.nordicmag.info/en/2026-olympics-cross-country-skiing-accident-heart-surgery-illness-and-mourning-brazils-bruna-moura-sees-her-olympic-dream-through-to-the-end-0212/>

Questão 29

How was Moura received by the audience when she arrived at the finish line?

- (A) Everybody was puzzled.
- (B) People started swearing at her.
- (C) There was no one to welcome her.
- (D) The crowd threw eggs all over her.
- (E) The audience clapped and greeted her.

Questão 30

How could Bruna have her best friend by her side at the Olympics?

- (A) Carrying a picture of her friend.
- (B) Slipping on her friend’s wetsuit.
- (C) Inviting her friend to go to Milan.
- (D) Fighting a lifetime with her friend.
- (E) Talking to her friend on her way to Milan.

Read text IV to answer questions 31 and 32.

In order to contribute with defense and sovereignty over Brazilian Jurisdictional Waters, the Brazilian Navy has concentrated its efforts on the Submarine Development Program (PROSUB), which will expand the Force’s operational capacity to protect and preserve our Blue Amazon*. As part of the new Growth Acceleration Program - PAC, of the Federal Government, and under coordination of the Navy Command, PROSUB was created in 2008, comprising the construction of an Industrial Infrastructure and Support for the operation and maintenance of submarines, the construction of four conventional submarines and the construction project of the first Brazilian conventionally armed submarine with nuclear propulsion.

Supported by three pillars: technology transfer, except in the nuclear area, nationalization of equipment and systems, and personnel training, the Program is enabling the first industrial complex and logistical support dedicated to naval means with nuclear propulsion in the southern hemisphere.

Built in an area of 750 thousand square meters, the Itaguaí Naval Complex is one of the largest

designed to build and house the new generation of Brazilian submarines. The first of four Brazilian conventional submarines (S-BR), the Submarine "Riachuelo" (S-40) was launched to the sea on December 14th, 2018. In sequence, the Humaitá (S-41) was launched in 2020; the Tonelero (S-42), in 2024 and the Almirante Karam (S-43), in 2025.

The first Brazilian conventionally armed submarine with nuclear propulsion, main scope of the program, will be named "Álvaro Alberto", a tribute to the Admiral who was the pioneer in the use of nuclear technology in the country. The completion of the Program will also strengthen several sectors of the national industry of strategic importance for the country's economic development.

**Blue Amazon (Amazônia Azul) is the name given to Brazil's jurisdictional waters and continental shelf since 2004, covering roughly 5.7 million maritime area in the South Atlantic. It is a strategic concept highlighting immense economic (oil, fishing, minerals) and biodiversity resources, deemed as vital for national security as the land-based (Green) Amazon rainforest.*

Adapted from https://www.gov.br/defesa/pt-br/assuntos/industria-de-defesa/cartilha_projetos-estrategicos_site_eng.pdf

Questão 31

In the sentence "In order to contribute with the defense and sovereignty over Brazilian Jurisdictional Waters" (1st paragraph), the underlined phrase is used to express:

- (A) cause.
- (B) result.
- (C) contrast.
- (D) purpose.
- (E) conclusion.

Questão 32

Mark the option that contains a correct statement about the text.

- (A) The PROSUB program is designed to fulfill national security needs, acting as a stimulus for the country's technological and industrial development.
- (B) The Blue Amazon is a recently designated area that the Brazilian Navy began protecting after the creation of the new PAC program.
- (C) The development of the nuclear powered submarine "Álvaro Alberto" relies heavily on the technology transfer pillars mentioned in the program.
- (D) The Itaguaí Naval Complex was constructed for the sole purpose of housing the first Brazilian nuclear-powered submarine.
- (E) The Blue Amazon is considered more relevant for national security than the land-based (Green) Amazon rainforest.

Read text V to answer questions 34 and 35.

More than 58,000 Brazilians are living in Ireland with a growing number working in professional roles, a quarter having Irish partners and more than 40 per cent saying they do not intend to return to Brazil, according to a new report.

The survey, published on Friday by Brazil's embassy in Ireland, suggests 78.5 per cent of the estimated 58,500 Brazilians living in the State have arrived since 2016. Almost two-thirds came to learn English, 61 per cent had a visa specifically allowing them to study but 60 per cent have successfully changed their immigration status since arriving. The report is based on a survey of almost 4,000 Brazilian nationals living in Ireland and research work carried out by consultants.

Despite high levels of fluency in English, participation in the workforce and social engagement with Irish people, 56 per cent of the respondents said they had experienced discrimination. Brazil's ambassador to Ireland, Marcel Biato, said the findings of the survey, highlighting the "seamless" integration of Brazilian people into Irish life, was somehow a good response in a week when an unprovoked assault on a Brazilian man in Limerick made headlines. Mr. Biato said the embassy had been in touch with Brazilians living in Limerick and Irish authorities to ensure everything possible was done to counter the threat of further similar violence happening.

The survey findings suggest there has been a substantial evolution in the type of work being undertaken since Brazilians arrived in the 1990s to work in Irish meat processing plants and on construction sites. Some 85 per cent of those surveyed have higher level qualifications and a growing number work in areas such as information technology and professional services.

It found 61 per cent of Brazilians in Ireland live in Dublin, with 8 per cent in Cork. Some 16.6 per cent reported owning their own homes; a quarter said they had children, two-thirds of whom were born in Ireland. It also found that some 60 per cent of respondents had a complete or strong sense of "belonging in Ireland". It also suggests that the number of Brazilian people in Ireland increased by 8,500 between 2022 and when the survey was carried out late last year.

Mr. Biato described the research as "the first of its kind, a pioneering effort to provide a detailed profile of Brazilians living in this country". He said it provided "a wealth of information about many aspects of the personal and professional lives of this population, as well as its main concerns and aspirations".

With the research suggesting more than 80 per cent maintain strong links to home or their culture, Mr. Biato said the embassy was working to support a new generation of Brazilian-Irish who he hoped would be "true ambassadors of their dual inheritance". However, he said this would happen only "if the new generation learns to value diversity and practise tolerance. This is an especially urgent challenge in the face of the threat of the normalisation of anti-immigrant sentiment."

Adapted from <https://www.irishtimes.com/ireland/social-affairs/2024/04/19/>

Questão 33

According to the survey, which option is true about the Brazilians living in Ireland?

- (A) Only a small percentage, nearly 15%, has higher level qualifications.
- (B) Most of them live in rural areas, with only 8% living in Dublin.
- (C) Over 40% would like to return to Brazil if they could.
- (D) Some 60% have no sense of belonging in Ireland.
- (E) Just over 50% have experienced discrimination.

Questão 34

In the sentence "(...) two thirds of whom were born in Ireland" (5th paragraph), the relative pronoun refers to:

- (A) Brazilians.
- (B) Dublin.
- (C) Cork.
- (D) Children.
- (E) Homeowners.

Questão 35

Mark the option in which the explanation, in parenthesis, for the use of the verb tense in the corresponding sentence is correct.

- (A) "More than 58,000 Brazilians are living in Ireland" (present continuous to express a future arrangement).
- (B) "The number of Brazilian people in Ireland increased by 8,500" (simple past to express a finished action in the past).
- (C) "More than 80 per cent maintain strong links to home or their culture" (simple present to express an action happening at the moment of speaking).
- (D) "The embassy was working to support a new generation of Brazilian-Irish" (past continuous to express a habit in the past).
- (E) "60 per cent have successfully changed their immigration status" (present perfect to express an action that was completed before another action in the past).

Read text VI to answer question 36 to 38 and 40.

The internet went into overdrive when the song "Heart on My Sleeve" first dropped in 2023. Fans were on cloud nine, fully convinced that Drake and The Weeknd had just casually dropped a surprise collaboration. Social media lit up with excitement as listeners praised the track, thinking it was another hit from two of music's biggest creators - and could a whole album be on the way?

But as the song racked up millions of streams on TikTok, the truth surfaced - this wasn't a new Drake and The Weeknd collab. In fact, it wasn't them at all. The track was created by a TikTok user, Ghostwriter977, using artificial intelligence to perfectly mimic the two artists' voices. The revelation sent shockwaves across the industry, raising eyebrows and questions about the role of AI in music.

AI-generated music is a polarizing topic; depending on who you ask, it's either the next big innovation or a cultural catastrophe waiting to happen. There's no doubt that artificial intelligence is changing the music industry, but the question remains: is it a tool to unlock new creative frontiers, or is it a threat to the authenticity and soul of music as we know it?

These technologically capable algorithms compose everything from background music to full-fledged songs. Some argue it's an incredible tool for musicians and producers, offering new ways to experiment with sound, composition, and genre - even overcoming writer's block. AI can generate infinite variations of a melody, compose background scores for films, or even write lyrics based on given parameters. AI is more than just a tool for those pushing boundaries - it's a creative partner. It allows artists to break away from traditional musical structures and unlocks a world of possibilities.

But here's the flip side: AI doesn't understand human emotion. It doesn't have the lived experiences that often give music its soul. While an AI can generate a technically proficient melody, can it truly capture the emotional depth of a musician pouring their heart into a track? Critics argue that AI-generated music can feel hollow, lacking the emotion and intention that comes from a human touch. Sure, AI can replicate patterns, styles, and formulas, but does it truly understand why certain notes make us feel a certain way? Many fear that relying too heavily on AI will lead to a flood of cookie-cutter music devoid of real emotion or authenticity.

Looking out for tomorrow, what does AI mean for the future of creativity? Are we moving toward a world where algorithms outpace human artists, churning out music by the minute? This raises concerns for musicians, producers, and even DJs, who worry about their roles being replaced by technology, much like other industries where automation has taken over.

As AI continues to evolve, artists and creators will have to find ways to use AI as a tool while ensuring that the heart of music - its ability to move, inspire, and connect - remains in human hands. Ultimately, AI-generated music can be a powerful partner, but without careful consideration, it may turn the art of music into just another algorithmic output.

Adapted from <https://council.rollingstone.com/blog/>

Questão 36

What is the best title for this text?

- (A) The Rise and Fall of Drake and the Weeknd: An AI Story
- (B) A Guide to Replacing Human Musicians with Algorithms
- (C) AI Generated Music: a Creative Revolution or a Cultural Crisis
- (D) The Technical Mechanics of AI Coding in Modern Music Producing
- (E) Why AI Will Never Successfully Mimic the Voices of Famous Artists

Questão 37

The sentence “Fans were on cloud nine”, in the 1st paragraph, means that fans were:

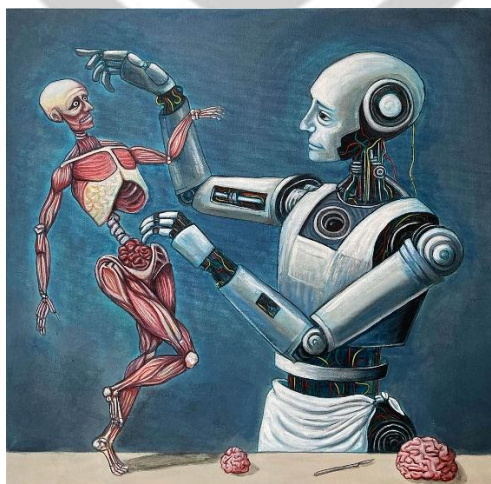
- (A) ecstatic about the collaboration between the artists.
- (B) concerned about the role of artificial intelligence in art.
- (C) skeptical about the authenticity of the song released.
- (D) indifferent to the song created by two famous singers.
- (E) excited that AI was used to compose the song.

Questão 38

In the last paragraph, the underlined verbs “have to”, “can” and “may” are used to convey the idea of:

- (A) necessity; possibility; probability.
- (B) obligation; possibility; permission.
- (C) necessity; permission; possibility.
- (D) obligation; permission; possibility.
- (E) obligation; necessity; probability.

Read text VII to answer questions 39 and 40.



The title for this painting comes from George Orwell's dystopian novel *Nineteen Eighty Four* and refers to a fictional device employed by Ingsoc, the ruling party of Oceania. Its primary purpose is to act as a "writing machine" to produce both literature and music, whose target audience is the working-class people. The Versificator provides a means of creating output without having any of the party members actually engaged in a creative thought, as it can be seen in the excerpt from Orwell's book:

"The tune had been haunting London for weeks past. It was one of countless similar songs published for the benefit of the proles by a sub-section of the Music Department. The words of these songs were composed without any human intervention whatever on an instrument known as a Versificator. But the woman sang so tunelessly as to turn the dreadful rubbish into an almost pleasant sound."

Adapted from: <https://www.shardcore.org/spx/2023/11/08/the-versificator/>

Questão 39

It is possible to affirm that:

- (A) The painting measures 60 centimeters on each side and its idea comes from a book written in 1984.
- (B) The title of the painting refers to a machine in the novel that makes songs and literature for high-class people.
- (C) In the novel, because of the dreadful nature of the machine-generated songs, the listeners could not enjoy them.
- (D) The machine's main job, in the novel, is to write songs automatically, without the need for human creativity.
- (E) In the novel, the Versificator machine assists human writers and musicians to make their songs better.

Questão 40

It is possible to state that both modern Artificial Intelligence and the Versificator machine, in George Orwell's *Nineteen Eighty Four*, are capable of writing songs that:

- (A) are creative and of high quality.
- (B) are made for all kinds of audiences.
- (C) have no human intervention.
- (D) distract and amuse other machines.
- (E) are all dreadful rubbish.

Gabarito

Matemática

- 1- E
- 2- A
- 3- E
- 4- C
- 5- D
- 6- B
- 7- E
- 8- C
- 9- B
- 10- B
- 11- A
- 12- C
- 13- A
- 14- C
- 15- E
- 16- C
- 17- A
- 18- B
- 19- B
- 20- B

Inglês

- 21- E
- 22- B
- 23- D
- 24- B
- 25- C
- 26- C
- 27- A
- 28- B
- 29- E
- 30- A
- 31- D
- 32- A
- 33- E
- 34- D
- 35- B
- 36- C
- 37- A
- 38- A
- 39- D
- 40- C