QUESTÃO 17

Sejam $a_1; a_2; a_3; ...; a_{n-2}; a_{n-1}; a_n$ os divisores do número $K = \frac{3a^3}{(2b)^2} \times \left[\frac{\sqrt[3]{9a^4}}{4b^2}\right]^{-\frac{3}{2}}$, organizados em ordem crescente dos números naturais. Considerando que $a = \sqrt{108}$ e $b = \sqrt{3}$, determine o algarismo de maior valor absoluto do número $T = a_1 + a_2 + a_3 + \cdots + a_{n-2} + a_{n-1} + a_n$ e marque a opção correta.

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

QUESTÃO 18

Um ponto P, pertencente a uma circunferência de raio de 5 unidades, dista 4,8 unidades de um diâmetro dessa circunferência. Qual a soma das distâncias de P até os extremos desse diâmetro?

(A) 14
(B) 12
(C) 7
(D) 6
(E) 5

QUESTÃO 19

O número 'E' é obtido pela expressão formada pela soma de todas as potências naturais do número 2, desde 0 até 2019, ou seja, $E = 2^0 + 2^1 + 2^2 + 2^3 + 2^4 + \cdots + 2^{2018} + 2^{2019}$. O resto da divisão de 'E' por 7 é:

(A) 5
(B) 4
(C) 3
(D) 2
(E) 1

QUESTÃO 20

Multiplicando os valores reais distintos que resolvem a equação $(x^3 - 6x^2 + 12x - 4)^2 - 15(x^3 - 6x^2 + 12x - 4) + 36 = 0$, encontra-se, como resultado:

(A) 4
(B) 6
(C) 9
(D) 12
(E) 18

Read text I to do items 21 to 28.

TEXT I

Robotic Cars

The year is 2020, and it's 7;45 on a rainy Monday morning, and you are in your car on your way to work. You turn right, and you turn left. A few minutes later, you stop at a traffic light. When the light turns green and there are no other cars in the intersection, you continue on your way. Ten minutes later you get to work and stop reading the morning paper. Then, you get out of your car and you say, "Thank you!". Your car replies, "You're welcome!". This possible future may sound unreal, but in fact many car companies are already testing robotic cars, or driverless cars, on the roads today, although the cars don't speak very much yet.

In the 1980s, Germany and the United States tested the first driverless cars, and by 2020 companies such as Volvo, GM, Nissan and BMW plan to sell driverless cars. Driverless cars are not really 'driverless'- the drivers are computers that use radar, computer maps and other modern technology. They offer many advantages. Perhaps the most important of these is fewer deaths caused by road accidents. For example, in 1968 more than 53.000 people lost their lives in car accidents in the USA. This number has fallen to less than 33.000 but it's still a high number. In addition, people will spend less time stuck in traffic jams and there will be no need for people to have a driving license. One of the major disadvantages of this new technology, however, is the cost. It's not free. U$5.000 to U$10.000 is added to the price of the new car. Nevertheless, at some time in your life, you will probably be sitting in a robotic, driverless car on your way to work or school. The future is almost here. Are you ready for it?

<https://www.allthingstopics.com/uploads/2/3/2/9/23290220/lesson-driving-roboticcars2.pdf>

QUESTÃO 21

According to the text, a driverless car is a car that

(A) doesn't have any driver.
(B) uses technology to move.
(C) goes where it wants.
(D) only goes to work or school.
(E) drives and reads the papers.

QUESTÃO 22

Read the extract from the text

'The year is 2020, and it's 7:45 on a rainy Monday morning, (...)'

What's the correct question referring to the underlined information?

(A) What's the weather?
(B) What's the weather like?
(C) How is the weather?
(D) How is the climate like?
(E) What's the climate?

QUESTÃO 23

The robotic car can:

(A) read the morning paper.
(B) turn right, left and green.
(C) say a few words.
(D) do your work for you.
(E) test car companies.

QUESTÃO 24

Read the sentence below.

That is an intelligent car that works with a computer.

What's the plural form of the sentence?

(A) These are intelligents cars that work with computers.
(B) Those are intelligent cars that work with computers.
(C) Those are intelligents cars that works with computers.
(D) These are intelligent cars that works with computers.
(E) Those are intelligent cars that works with computers.

QUESTÃO 25

Read the extract from the text

'When the light turns green and there are no other cars in the intersection, (...)'

Mark the option that can replace the underlined sentence.

(A) there are some other cars
(B) there aren't any other cars
(C) there is another car
(D) there are a few other cars
(E) there aren't many cars

QUESTÃO 26

Read the extract from the text.

'Ten minutes later you get to work and stop reading the morning paper.'

Mark the option that can replace the expression get to.

(A) drive to
(B) go to
(C) find
(D) arrive at
(E) come from

QUESTÃO 27

Mark the sentences that does not represent an advantage of driverless cars.

(A) Robotic cars will probably reduce the number of accidents.
(B) People won't waste so much time in traffic jams.
(C) Driverless cars will be cheaper than regular cars.
(D) Driving licenses won't be necessary.
(E) It will be possible to relax in a robotic car.

QUESTÃO 28

Read the extract from the text.

'They offer many advantages.'

The subject pronoun 'they' refers to:

(A) Germany and the United States.
(B) Volvo, GM, Nissan and BMW.
(C) computers with radars.
(D) driverless cars.
(E) computer maps.

Read text II to do items 29 to 31.

TEXT II

Passwords to be replaced by Web Authentication

It looks like login usernames and passwords are on ____(I)____ way out. No longer will we have to worry about the security of ____(II)____ login credentials. They are set to be replaced by an infinitely more secure login system known as Web Authentication. Web Authentication has become an official standard for logging in at the main Internet standards body, the World Wide Web Consortium (WWWC). It is a system that will be universally used by web browsers and platforms for simpler and stronger authentication processes. It will allow website users to log in securely to their online accounts using a digital device, biometrics (such as fingerprints and facial recognition) or USB security keys.

The WWWC spoke about the days of passwords being numbered. A spokesperson said: "It's common knowledge that passwords have outlived their efficacy. Not only are stolen, weak or default passwords behind 81 per cent of data breaches, they are a drain of time and resources." It added: "Now is the time for web services and businesses to adopt Web Authentication to move beyond vulnerable passwords and help web users improve the security of their online experiences," Web Authentication means users are at less risk of having their passwords and credentials stolen. This is because login authentication is achieved via physical vices or biometrics from our body.

<https://breakingnewsenglish.com/1904/190401-web-authentication.html>

QUESTÃO 29

Mark the option which is false about the text.

(A) Login credentials might soon be replaced by Web Authentication.
(B) Web Authentication makes use of biometrics.
(C) The WWW Consortium suggested the use of passwords is nearing an end.
(D) The WWW Consortium suggested passwords are a waste of resources.
(E) Web Authentication increases the risk of having passwords stolen.

QUESTÃO 30

Mark the option that fills in blanks I and II, respectively.

(A) their / our
(B) it / us
(C) its / ours
(D) theirs / ours
(E) its / us

QUESTÃO 31

What two examples of biometrics did the article mention?

(A) Facial recognition and DNA.
(B) Fingerprints and facial recognition.
(C) Our retina and fingerprints.
(D) DNA and fingerprints.
(E) DNA and USB security keys.

QUESTÃO 32

Match the questions and answers.

I- How's Mary?
II- What does Cindy do?
III- Whose daughter is Karen?
IV- How much meat does your sister have on a regular meal?
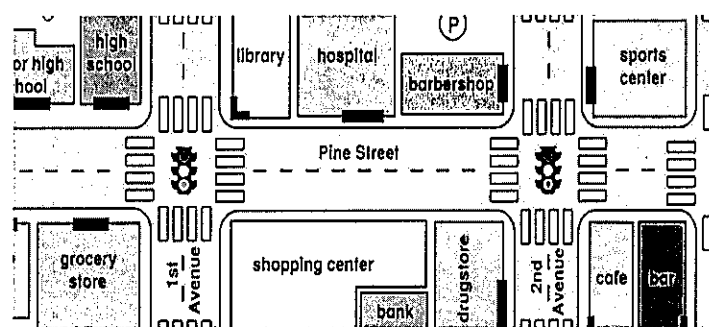V- Hou many friends do Mark and Sue have on Facebook?

( ) A few.
( ) She's hers.
( ) She's all right.
( ) A little.
( ) She's a shop manager.

Mark the option that shows the correct order of answers.

(A) (I) (II) (III) (IV) (V)
(B) (IV) (I) (II) (III) (V)
(C) (V) (III) (I) (IV) (II)
(D) (IV) (I) (III) (V) (II)
(E) (II) (V) (IV) (I) (III)

QUESTÃO 33

Observe the city map.

It's correct to say that the

(A) grocery store is in front of the high school.
(B) library is behind the hospital.
(C) drugstore is next to the café.
(D) barbershop is across from the sports center.
(E) the bank is between the shopping center.
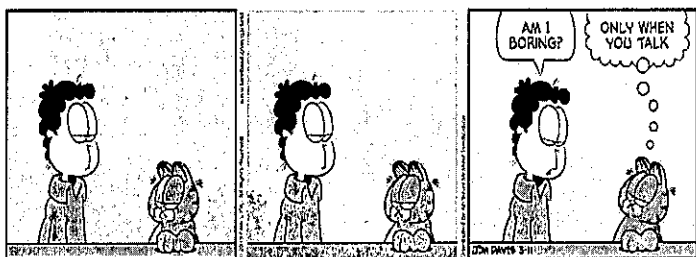
QUESTÃO 34

Read and complete the sentence below.

I'm traveling to _____ United States next month. I want to see _____ Hawaii and _____ Rocky Mountains (depending on _____ money and _____ time!).

Mark the option which best completes the blanks respectively.

(A) the / X / the / X / X
(B) X / the / the / the / the
(C) X / the / the / X / X
(D) the / the / the / the / the
(E) X / X / the / the / X

QUESTÃO 35

Read Garfield, a comic strip, by Jim Davis.

https://www.gocomics.com/garfield

It's correct to say that Garfield

(A) is always boring.
(B) is never bored at Jon.
(C) gets bored when Jon talks.
(D) has a boring life.
(E) thinks Jon has a boring voice.

QUESTÃO 36

Mark the sentence that is not true.

(A) People often go to the hospital when they are healthy.
(B) You can get a haircut at the barbershop.
(C) When you need medicine, you go to the drugstore.
(D) At the library you find calm atmosphere and many books.
(E) Exercising at a sports center makes you stronger and fitter.

QUESTÃO 37

Read the dialogue below.

A: Hi, Anna!
B: Good morning, Sue!
A: Tell me, dear, _____ you go to Theo's bday party last night?
B: oh, yes, I _____. It was great! I _____ so much fun! But I _____ you there! _____ you there, sweetie?
A: No, I _____. I _____ at home. What time did you get home?
B: It _____ about 11 p.m. when I got there!
A: All right then! See you around!
B See ya!

Mark the option that completes the dialogue correctly.

(A) were / was / did / don't see / Was / not / went / was
(B) did / did / had / didn't see / Were / wasn't / stayed / was
(C) will / will / am having / am not see / Do / don't / am / is
(D) were / were / did / saw / Were / weren't / were / is
(E) did / did / was having / wasn't / Did / didn't / stayed / got

QUESTÃO 38

Complete the sentences using the correct verb tense for the verbs in brackets.

Hanna _____ (drive) down the road when she _____ (see)the perfect wedding dress on a shop window.
Mark usually _____ (leave) for work early, but today he's a little late because he _____ (have) problems with his car.
Jane _____ (be)fifteen years old, so she _____ (have)a driving license.

Mark the sentence that shows the correct use of verb tenses.

(A) drove / saw / is leaving / has / has / has
(B) is driving / sees / left / has / is / hasn't
(C) was driving / was seeing / leave / is having / is / have
(D) drives / sees / leaves / was having / has / don't have
(E) was driving / saw / leaves / is having / is / doesn't have
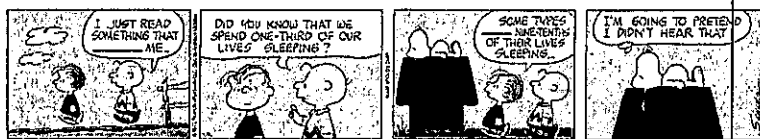
QUESTÃO 39

Read the statements .

I- The dog isn't sleeping but is listening to what they're talking about.
II- The boys are talking about mathematics.
III- The dog is worried about what they're talking about him.
IV- The boys are solving mathematics problems about dogs.

It's correct to say that only the

(A) sentences I and IV are correct.
(B) sentence III is correct.
(C) sentence I is correct.
(D) sentences II and III are correct.
(E) sentence II is correct.

QUESTÃO 40

Mark the right option to fill in the blanks in the cartoon, respectively.

https://www.gocomics.com/peanuts

(A) amazes - spend
(B) amazed - spend
(C) amazed - spends
(D) amazes - spends
(E) amazed - spent