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Subjects

1. Reading Placement Test
2. Writing Placement Test
3. Arithmetic Placement Test
4. Quantitative Reasoning, Algebra, and Statistics Placement Test
5. Advanced Algebra and Functions Placement Test

Topic: 1

Reading Placement Test

Question: 1

Which of the following best summarizes the above selection?

[The Time Traveller is talking to his friends. He has just explained that while three dimensions—length, breadth, and thickness—are typically accepted, a "fourth dimension" should also be considered. 'Well, I do not mind telling you I have been at work upon this geometry of Four Dimensions for some time. Some of my results are curious. For instance, here is a portrait of a man at eight years old, another at fifteen, another at seventeen, another at twenty-three, and so on. All these are evidently sections, as it were, Three-Dimensional representations of his Four-Dimensioned being, which is a fixed and unalterable thing. 'Scientific people,' proceeded the Time Traveller, after the pause required for the proper assimilation of this, 'know very well that Time is only a kind of Space. Here is a popular scientific diagram, a weather record. This line I trace with my finger shows the movement of the barometer. Yesterday it was so high, yesterday night it fell, then this morning it rose again, and so gently upward to here. Surely the mercury did not trace this line in any of the dimensions of Space generally recognized? But certainly it traced such a line, and that line, therefore, we must conclude was along the Time-Dimension. 'But,' said the Medical Man, staring hard at a coal in the fire, 'if Time is really only a fourth dimension of Space, why is it, and why has it always been regarded as something different? And why cannot we move in Time as we move about in the other dimensions of Space?'

The Time Traveller smiled. 'Are you sure we can move freely in Space? Right and left we can go, backward and forward freely enough, and men always have done so. I admit we move freely in two dimensions. But how about up and down? Gravitation limits us there.' 'Not exactly,' said the Medical Man. 'There are balloons.' 'But before the balloons, save for spasmodic jumping and the inequalities of the surface, man had no freedom of vertical movement.' 'Still they could move a little up and down,' said the Medical Man. 'Easier, far easier down than up.' 'And you cannot move at all in Time, you cannot get away from the present moment.' 'My dear sir, that is just where you are wrong. That is just where the whole world has gone wrong...'

[Adapted from H. G. Wells, *The Time Machine* (1895)]

- A. It is a conversation involving the age of men and space.
- B. It is a conversation about the nature of time and space.
- C. It is a dialogue from friends about their medical ideas.
- D. It is a dialogue from two colleagues about time and distance.

Answer: B

Explanation:

The two men are talking about four possible dimensions and their ability to move through them.

Question: 2

As referred to in paragraph 6 above, what is a synonym for the word "spasmodic"?

[The Time Traveller is talking to his friends. He has just explained that while three dimensions—length, breadth, and thickness—are typically accepted, a "fourth dimension" should also be considered. 'Well, I do not mind telling you I have been at work upon this geometry of Four Dimensions for some time. Some of my results are curious. For instance, here is a portrait of a man at eight years old, another at fifteen, another at seventeen, another at twenty-three, and so on. All these are evidently sections, as it were, Three-Dimensional representations of his Four-Dimensioned being, which is a fixed and unalterable thing. 'Scientific people,' proceeded the Time Traveller, after the pause required for the proper assimilation of this, 'know very well that Time is only a kind of Space. Here is a popular scientific diagram, a weather record. This line I trace with my finger shows the movement of the barometer. Yesterday it was so high, yesterday night it fell, then this morning it rose again, and so gently upward to here. Surely the mercury did not trace this line in any of the dimensions of Space generally recognized? But certainly it traced such a line, and that line, therefore, we must conclude was along the Time-Dimension. 'But,' said the Medical Man, staring hard at a coal in the fire, 'if Time is really only a fourth dimension of Space, why is it, and why has it always been, regarded as something different? And why cannot we move in Time as we move about in the other dimensions of Space?'

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[Adapted from H. G. Wells, *The Time Machine* (1895)]

- A. Required
- B. Impromptu
- C. Occasional
- D. Surprising

Answer: C

Explanation:

"Occasional" is very similar in meaning to "spasmodic."

Question: 3

What effect does the point-of-view in this story have on its development?

[The Time Traveller is talking to his friends. He has just explained that while three dimensions—length, breadth, and thickness—are typically accepted, a "fourth dimension" should also be considered. 'Well, I do not mind telling you I have been at work upon this geometry of Four Dimensions for some time. Some of my results are curious. For instance, here is a portrait of a man at eight years old, another at fifteen, another at seventeen, another at twenty-three, and so on. All these are evidently sections, as it were, Three-Dimensional representations of his Four-Dimensioned being, which is a fixed and unalterable thing. 'Scientific people,' proceeded the Time Traveller, after the pause required for the proper assimilation of this, 'know very well that Time is only a kind of Space. Here is a popular scientific diagram, a weather record. This line I trace with my finger shows the movement of the barometer. Yesterday it was so high, yesterday night it fell, then this morning it rose again, and so gently upward to here. Surely the mercury did not trace this line in any of the dimensions of Space generally recognized? But certainly it traced such a line, and that line, therefore, we must conclude was along the Time-Dimension. 'But,' said the Medical Man, staring hard at a coal in the fire, 'if Time is really only a fourth dimension of Space, why is it, and why has it always been, regarded as something different? And why cannot we move in Time as we move about in the other dimensions of Space?' The Time Traveller smiled. 'Are you sure we can move freely in Space? Right and left we can go, backward and forward freely enough, and men always have done so. I admit we move freely in two dimensions. But how about up and down? Gravitation limits us there.' 'Not exactly,' said the Medical Man. 'There are balloons.' 'But before the balloons, save for spasmodic jumping and the inequalities of the surface, man had no freedom of vertical movement.' 'Still they could move a little up and down,' said the Medical Man. 'Easier, far easier down than up.' 'And you cannot move at all in Time, you cannot get away from the present moment.' 'My dear sir, that is just where you are wrong. That is just where the whole world has gone wrong...']

[Adapted from H. G. Wells, *The Time Machine* (1895)]

- A. It makes the reader feel intelligent.
- B. It creates confusion.
- C. It builds suspense.
- D. It develops a feeling of contentment.

Answer: C

Explanation:

It builds suspense because the Time Traveller already knows about the outcome of his experiments with time travel, and he is only leading his audience along by explaining the thought process behind it.

Question: 4

How can you tell that the men's regular work is important?

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- A. The author does not identify them by name, but by occupation.
- B. The author mentions the free movement of an object in space.
- C. The author mentions portraits of an aging person.
- D. None of the above

Answer: A

Explanation:

The characters in the selection are not given names, but occupation titles. The Time Traveller and the Medical Man are discussing their ideas here to give the reader a quick insight into their characters.

Question: 5

The author's primary purpose in Passage A is to:

Passage A

Black History Month is unnecessary. In a place and time in which we overwhelmingly elected an African American president, we can and should move to a post-racial approach to education. As Detroit Free Press columnist Rochelle Riley wrote in a February 1 column calling for an end to Black History Month, "I propose that, for the first time in American history, this country has reached a point where we can stop celebrating separately, stop learning separately, stop being American separately."

In addition to being unnecessary, the idea that African American history should be focused on in a given month suggests that it belongs in that month alone. It is important to instead incorporate African American history into what is taught every day as American history. It needs to be recreated as part of mainstream thought and not as an optional,

often irrelevant, side note. We should focus efforts on pushing schools to diversify and broaden their curricula.

There are a number of other reasons to abolish it: first, it has become a shallow commercial ritual that does not even succeed in its (limited and misguided) goal of focusing for one month on a sophisticated, intelligent appraisal of the contributions and experiences of African Americans throughout history. Second, there is a paternalistic flavor to the mandated bestowing of a month in which to study African American history that is overcome if we instead assert the need for a comprehensive curriculum. Third, the idea of Black History Month suggests that the knowledge imparted in that month is for African Americans only, rather than for all people.

Passage B

Black History Month is still an important observance. Despite the election of our first African American president being a huge achievement, education about African American history is still unmet to a substantial degree. Black History Month is a

Having a month set aside for the study of African American history doesn't limit its study and celebration to that month; it merely focuses complete attention on it for that month. There is absolutely no contradiction between having a set-aside month and having it be present in the curriculum the rest of the year.

Equally important is that the debate *itself* about the usefulness of Black History Month can, and should, remind parents that they can't necessarily count on schools to teach African American history as thoroughly as many parents would want.

Although Black History Month has, to an extent, become a shallow ritual, it doesn't have to be. Good teachers and good materials could make the February curriculum deeply informative, thought-provoking, and

powerful tool in working towards meeting that need. There is no reason to give up that tool now, and it can easily coexist with an effort to develop a more comprehensive and inclusive yearly curriculum.

inspiring. The range of material that can be covered is rich, varied, and full of limitless possibilities.

Finally, it is worthwhile to remind ourselves and our children of the key events that happened during the month of February. In 1926, Woodson organized the first Black History Week to honor the birthdays of essential civil rights activists Abraham Lincoln and Frederick Douglass. W. E. B. DuBois was born on February 23, 1868. The 15th Amendment, which granted African Americans the right to vote, was ratified on February 3, 1870. The first black US senator, Hiram R. Revels, took his oath of office on February 25, 1870. The National Association for the Advancement of Colored People (NAACP) was founded on February 12, 1909. Malcolm X was shot on February 21, 1965.

A. Argue that Black History Month should not be so commercial.

- B. Argue that Black History Month should be abolished.
- C. Argue that Black History Month should be maintained.
- D. Suggest that African American history should be taught in two months rather than just one.

Answer: B

Explanation:

Passage A begins with the sentence "Black History Month is unnecessary," then goes on to make the argument that Black History Month should be abolished and offers numerous reasons for why this is the best course of action. The passage does mention that it has become "a shallow commercial ritual," but this is one of the many reasons given for abolishing it. not the primary purpose of the passage. The author wants to abolish Black History Month. not maintain or expand it.

Question: 6

It can be inferred that the term post-racial in the second sentence of Passage A refers to an approach that:

Passage A

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A. Treats race as the most important factor in determining an individual's experience

- B. Treats race as one factor, but not the most important, in determining an individual's experience
- C. Considers race after considering all other elements of a person's identity
- D. Is not based on or organized around concepts of race

Answer: D

Explanation:

The context of the sentence suggests that post-racial refers to an approach in which race is not a useful or positive organizing principle. The term post-racial refers to a time period when racial discrimination no longer exists. The author of Passage A believes that we are in a post-racial time and that it is time to remove race from education, which includes ending Black History Month.

Question: 7

Which of the following statements is true?

Passage A

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- A. The author of Passage A thinks that it is important for students to learn about the achievements and experiences of African Americans, while the author of Passage B does not think this is important.
- B. The author of Passage B thinks that it is important for students to learn about the achievements and experiences of African Americans, while the author of Passage A does not think this is important.
- C. Neither author thinks that it is important for students to learn about the achievements and experiences of African Americans.
- D. Both authors think that it is important for students to learn about the achievements and experiences of African Americans.

Answer: D

Explanation:

Clearly both authors think it is important for students to learn about the achievements and experiences of African Americans: their debate is whether observing Black History Month is the best way to achieve this goal.

Question: 8

The author of Passage A argues that celebrating Black History Month suggests that the study of African American history can and should be limited to one month of the year. What is the author of Passage B's response?

Passage A

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A. Black History Month is still an important observance.

- B. Black History Month is a powerful tool in meeting the need for education about African American history.
- C. Having a month set aside for the study of African American history does not limit its study and celebration to that month.
- D. Black History Month does not have to be a shallow ritual.

Answer: C

Explanation:

The author of Passage B points out that just because there is a month focused on African American history, this doesn't mean that African American history must be ignored for the rest of the year.

Question: 9

The statements made in the passage support which of the following claims?

It is believed that the diamond was originally discovered and extracted in India as much as 6,000 years ago. The word diamond, however, derives from the Greek *adamas*, or adamant, which means "unbreakable" or even "untamed," and has made its way into Western literature through the Greek tradition. Having heard rumors of exceptionally strong stones, the Greeks developed a mythology about an unbreakable stone that was known as adamant. By the Middle Ages, this came to be recognized as the diamond. Over time, the legendary adamant came to take on a mystical quality that passed into certain forms of medieval literature and even today has an allegorical place in some genres.

- A. Given the legendary status of the adamant, it might have been better if the diamond and its actual qualities had remained a mystery.
- B. Because the adamant was originally associated with mythical qualities, it retains figurative attributes that are still valuable for some writers.
- C. The diamond and the adamant are essentially the same gem, and the two terms can be interchanged.
- D. The Greek word adamant is based on an ancient word of India that meant the same thing but has now been lost to history.

Answer: B

Explanation:

Choice B accurately provides an inference that has clear antecedent in the passage. The author of the passage claims, "By the Middle Ages, this came to be recognized as the diamond. Over time, the legendary adamant came to take on a mystical quality that passed into certain forms of medieval literature and. Even today, has an allegorical place in some genres." This means that the inference and claim made in choice B are correct: the adamant was originally associated with mythical qualities, and as a result, writers still utilize it in literature for its figurative (or allegorical) attributes.

Question: 10

If the passage is true, which of the following can be inferred from it?

Colorblindness is a vision deficiency that limits the ability of the sufferer to see certain colors clearly. The condition may affect a person in varying degrees, ranging from mild colorblindness with a red or green

color deficiency to complete colorblindness with no ability to distinguish any colors beside dim shades of brown. The primary cause of colorblindness is believed to be a mutation on the X chromosome. Men carry a single X chromosome, possessing an XY chromosome makeup, while women carry X chromosomes, thus having the potential to combat colorblindness with an extra X chromosome.

- A. Colorblindness is a rare condition that affects very few members of the population.
- B. Despite the handicap, those who are colorblind might have certain advantages, particularly in seeing camouflage,
- C. Women alone are capable of passing on a gene for colorblindness.
- D. Because of the way colorblindness affects the X chromosome, men are more likely to be colorblind than women.

Answer: D

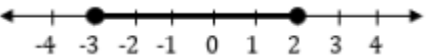
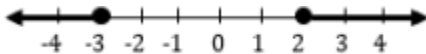
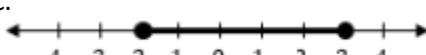
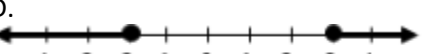
Explanation:

At the end of the passage, the author notes, "Men carry a single X chromosome, possessing an XY-chromosome makeup, while women carry two X chromosomes, thus having the potential to combat colorblindness with an extra X chromosome." This suggests that men are more likely to be colorblind than women because men have only a single X chromosome. Of all the options, choice D can best be inferred from the passage, so it is correct.

Question: 11

Which of the following correctly represents the solution to the inequality?

$$x^2 + 2x \geq x + 6$$

- A. 
- B. 
- C. 
- D. 

Answer: B

Explanation:

To simplify the inequality $x^2 + 2x \geq x + 6$, we can first move all the terms to the left-hand side.

$$x^2 + 2x - x - 6 \geq 0$$

$$x^2 + x - 6 \geq 0$$

We can now factor the left-hand side. Since the leading coefficient is 1, one way to do this is to look for two numbers that add to the coefficient of x (1) and multiply to the constant term (-6). The two numbers that qualify are -2 and 3, so $x^2 + x - 6 = (x - 2)(x + 3)$.

$$(x - 2)(x + 3) \geq 0$$

We know the dividing points for the regions that do and do not satisfy the inequality are then at $x - 2 = 0$ and at $x + 3 = 0$, that is at $x = 2$ and at $x = -3$. Consider the sign in each region: when $x < -3$, then $x - 2$ and $x + 3$ are both negative, and their product is positive. When $-3 < x < 2$, then $x - 2$ is negative and $x + 3$ is positive, so their product is negative. When $x > 2$, then $x - 2$ and $x + 3$ are both positive, and their product is positive: $(x - 2)(x + 3) \geq 0$ when $x \leq -3$ or $x \geq 2$.

Question: 12

If $\sec \theta = 2$, then which of the following is a possible value for $\sin \theta$?

- a. $-\frac{\sqrt{3}}{2}$
- b. $-\frac{1}{2}$
- c. 0
- d. 1

- A. Option A
- B. Option B
- C. Option C
- D. Option D

Answer: A

Explanation:

$\sec \theta = \frac{1}{\cos \theta}$, or, equivalently, $\cos \theta = \frac{1}{\sec \theta}$. Therefore, if $\sec \theta = 2$, then $\cos \theta = \frac{1}{2}$. $\cos \theta = \frac{1}{2}$ when $\theta =$

60° or $\theta = 300^\circ$; $\sin 60^\circ = \frac{\sqrt{3}}{2}$ and $\sin 300^\circ = -\frac{\sqrt{3}}{2}$. Alternatively, use the Pythagorean identity $\sin^2 \theta + \cos^2 \theta =$

1 to find $\sin \theta$, so $\sin^2 \theta = 1 - \cos^2 \theta$, and $\sin \theta = \pm \sqrt{1 - \cos^2 \theta} = \pm \sqrt{1 - \left(\frac{1}{2}\right)^2} = \pm \sqrt{1 - \frac{1}{4}} = \pm \sqrt{\frac{3}{4}} = \pm \frac{\sqrt{3}}{2}$.

(Whether the sine is positive or negative depends on what quadrant the angle is in. There is not enough information given in the problem to determine that, which is why the problem only asks which of the answer choices is a *possible* value for $\sin \theta$.)

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