

***ISTEP+* Grade 10**

Indiana Statewide Testing for Educational Progress-Plus

Part 2 Practice Test

Mathematics • English/Language Arts



Student Name: _____

Use only a Number 2 pencil to mark your answers in your answer book. Responses written in pen CANNOT be scored.



If you see this symbol, you may NOT use a calculator to solve problems in the test.



If you see this symbol, you may use a calculator to solve problems in the test.



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SECTION

1



Mathematics

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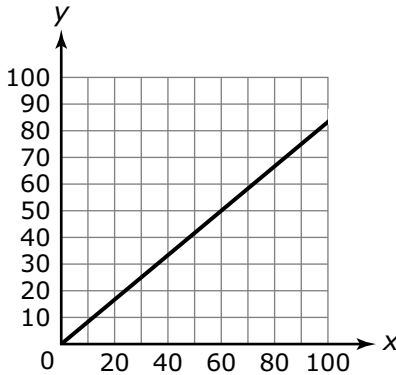


Section 1: Mathematics



1. Use the information about Joan's and Mike's traveling to answer Parts A and B.

The line plotted on the graph represents Mike's distance, in miles, y , from his home after traveling a certain time, x , in minutes. The point $(0, 90)$ represents where Joan starts driving to Mike's house. The point $(30, 70)$ represents the time it takes Joan to be 70 miles away from Mike's house.



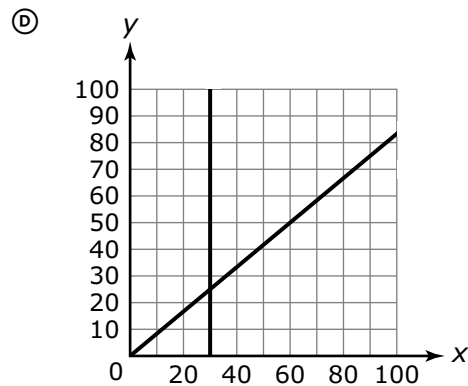
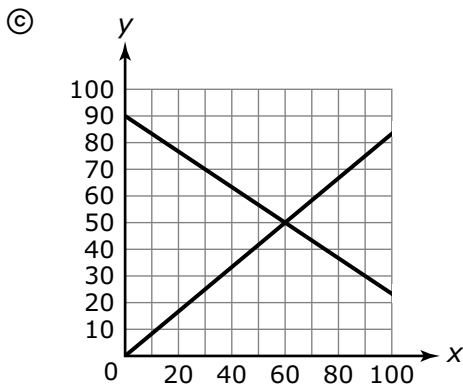
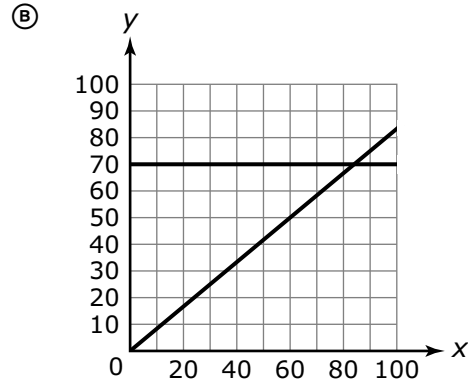
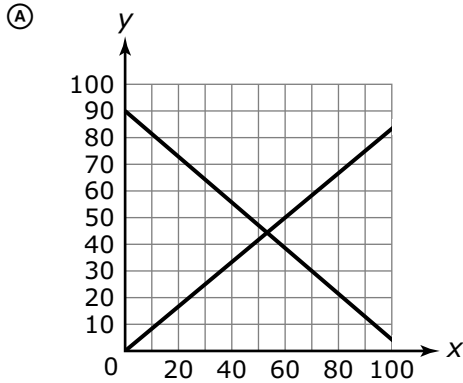
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Section 1: Mathematics

Part A

Which graph shows the line that goes through points $(0, 90)$ and $(30, 70)$ plotted correctly?



Part B

How can you use the graph to approximate the solution that BEST represents the time when Mike and Joan are the same distance from Mike's home?

- (A) Determine the point on the graph where the lines cross the x -axis.
- (B) Determine the point on the graph where the lines cross the y -axis.
- (C) Determine the point on the graph where the lines intersect each other.
- (D) Determine the point on the graph where the lines intersect the origin.

GO ON

Section 1: Mathematics



2. Select ALL the numbers that are rational numbers.

(A) $\sqrt{2}$

(B) 2.5

(C) 5

(D) $\frac{2}{5}$

(E) π

3. A calculator generated some numbers in scientific notation.

5.3E4, 5.89E⁻¹, 5.42E3, 5.5E1, 5.73E⁻¹

Which list shows the numbers in order from least to greatest, where aEb represents $a \times 10^b$?

(A) 5.3E4, 5.42E3, 5.5E1, 5.73E⁻¹, 5.89E⁻¹

(B) 5.89E⁻¹, 5.73E⁻¹, 5.5E1, 5.42E3, 5.3E4

(C) 5.3E4, 5.5E1, 5.42E3, 5.73E⁻¹, 5.89E⁻¹

(D) 5.73E⁻¹, 5.89E⁻¹, 5.5E1, 5.42E3, 5.3E4

GO ON 



Section 1: Mathematics

4. Which equations represent a line that passes through the coordinates (0, 7) and (2, 10)?

Select ALL that apply.

- (A) $y = \frac{3}{2}x + 7$
- (B) $3x - 2y = -7$
- (C) $y - 7 = \frac{3}{2}(x - 0)$
- (D) $y = -\frac{3}{2}x + 7$
- (E) $y - 0 = \frac{2}{3}(x - 7)$
- (F) $y = \frac{2}{3}x - 7$
- (G) $-3x + 2y = 7$
- (H) $3x - 2y = -14$

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Mathematics

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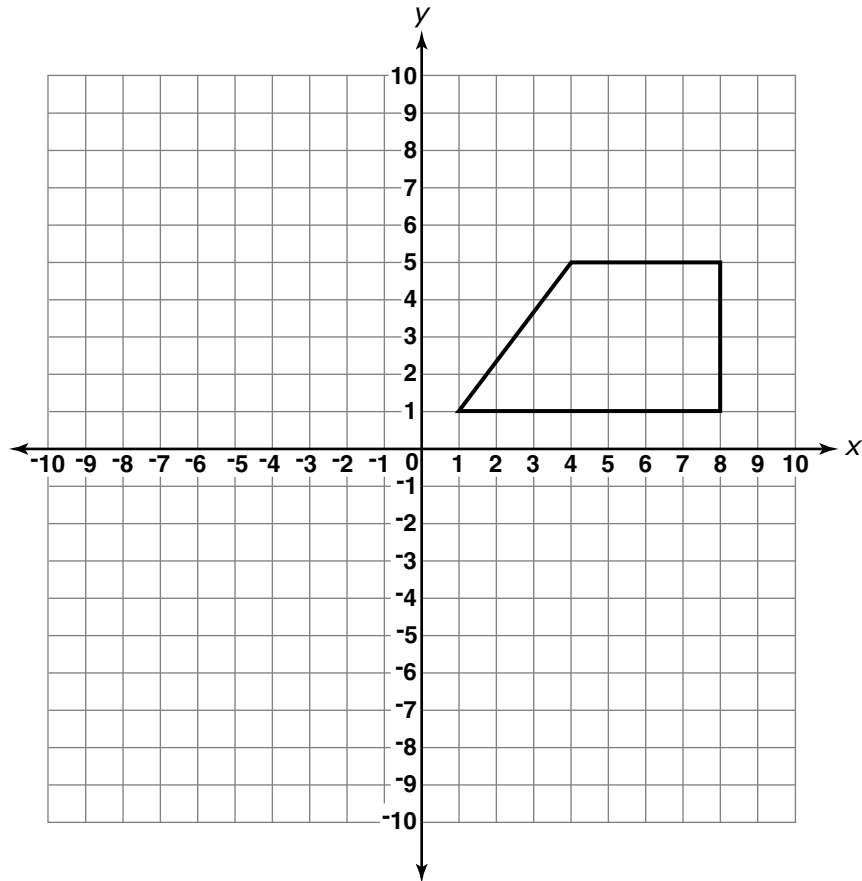
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Section 2: Mathematics



1. Consider the quadrilateral on the coordinate grid.



Which points represent the vertices of the image of the quadrilateral after a reflection across the x -axis. Select ALL that apply.

- Ⓐ $(1, -1)$
- Ⓑ $(8, -1)$
- Ⓒ $(-8, 5)$
- Ⓓ $(4, -5)$
- Ⓔ $(-8, 1)$
- Ⓕ $(8, -5)$
- Ⓖ $(-4, 5)$

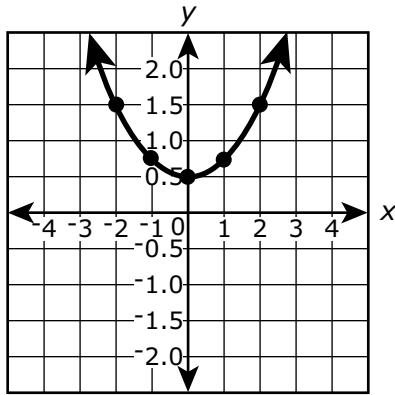
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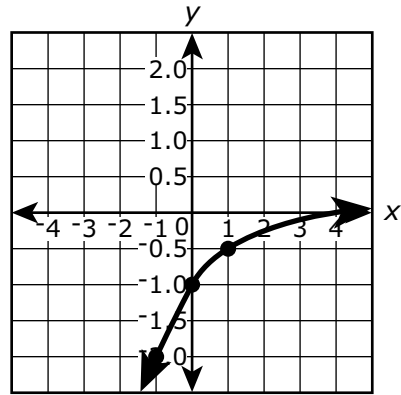
Section 2: Mathematics

2. Which graph represents $y = \left(\frac{1}{2}\right)^x$?

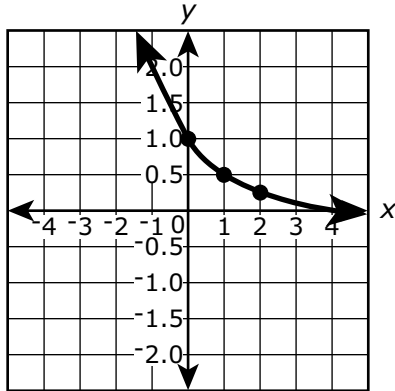
(A)



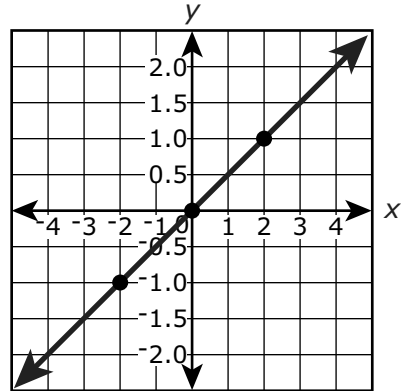
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(C)



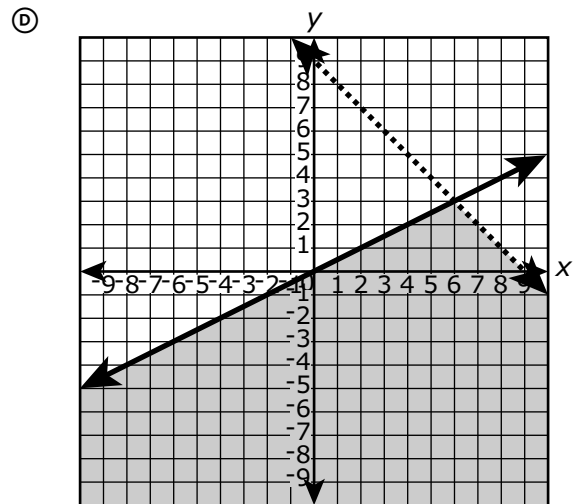
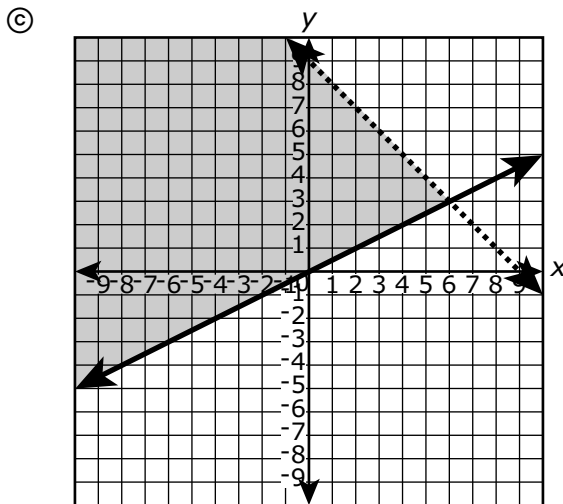
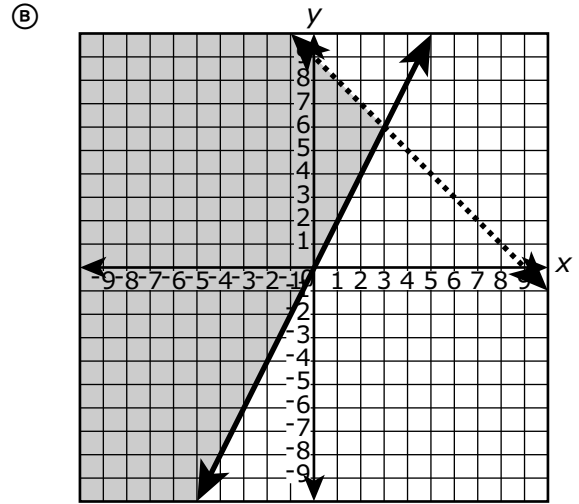
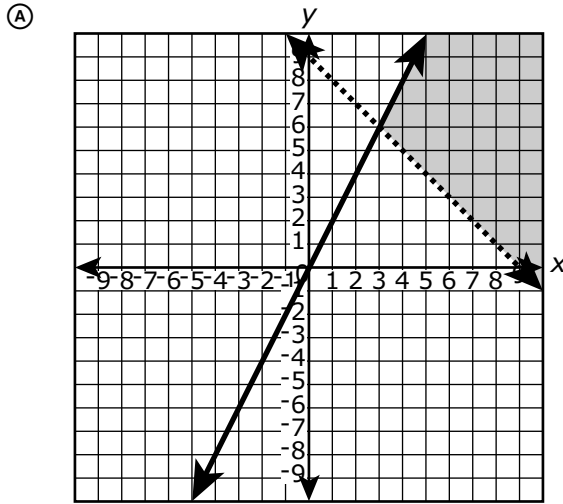
(D)



Section 2: Mathematics



3. The sum of two numbers is less than 9. The larger number is at least twice the smaller number. If x represents the smaller number, which graph represents the solution to the system of inequalities?



GO ON



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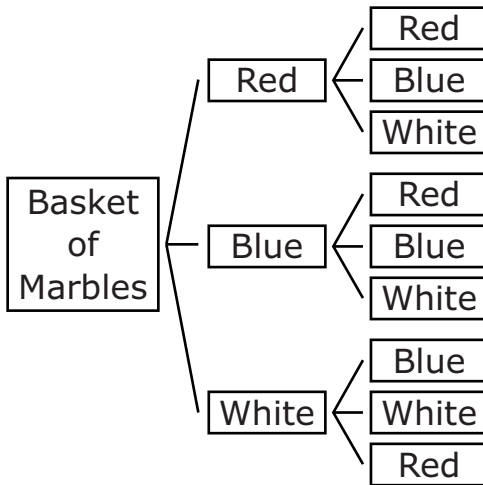
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Section 2: Mathematics

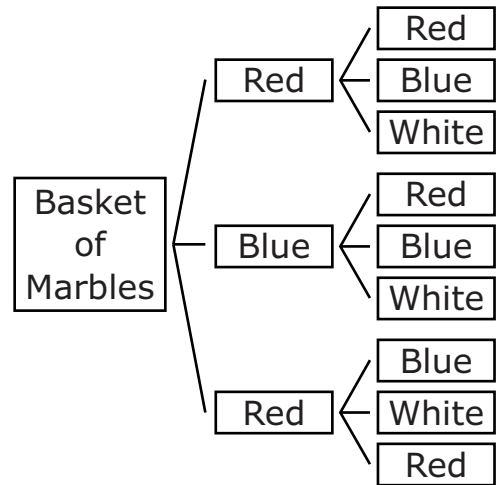


4. Steve has a basket with three marbles: one red, one blue, and one white. He randomly selects a marble and records the color. He places the marble back into the basket, randomly selects another marble, and records the color. Which tree diagram represents the sample space of the experiment?

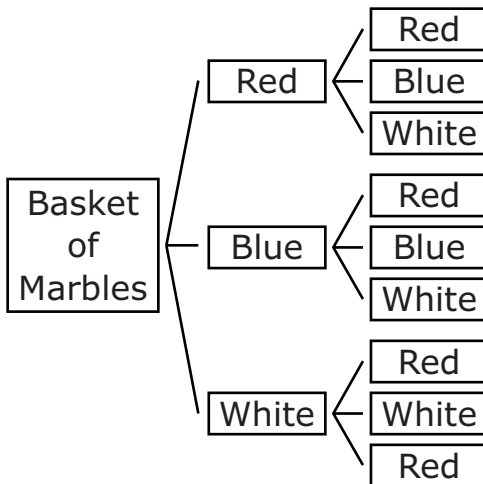
Ⓐ



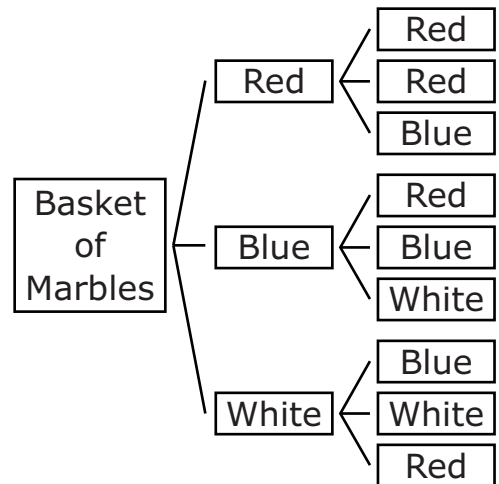
Ⓑ



Ⓒ



Ⓓ



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SECTION

1

English / Language Arts

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Section 1: English/Language Arts

1. Read this start to a student's narrative about some children's experiences at an attraction at a fair.

Even though the children were frightened by the Spooky Shack, they wouldn't consider being at the fair and not going through it. They got their first scare as soon as they stepped inside. ___A___ escaped from the mouth of a monstrous statue as they passed by. The children's screams were immediately followed by ___B___ as they huddled together and moved forward through the maze of corridors.

Part A

Select the phrase that offers the MOST vivid description to complete the first blank.

- Ⓐ An airy puff
- Ⓑ A blast of wind
- Ⓒ A thunderous belch
- Ⓓ An exaggerated breeze

Part B

Select the phrase that offers the MOST vivid description to complete the second blank.

- Ⓐ excited laughter
- Ⓑ uneasy giggles
- Ⓒ fearful cries
- Ⓓ loud exclamations

GO ON 

Section 1: English/Language Arts

2. Read this paragraph.

1 Scent discrimination is an advanced exercise in dog obedience competitions. **2** While these competitions show off a dog's skill, they are essentially for recreational purposes. **3** Scent discrimination is a vital foundational skill for dogs working in other search venues. **4** For competitions, a dog is directed to a pile of both metal and leather articles and is trained to select the one article with the handler's scent from the rest of the articles touched by a different individual. **5** Training is easier with only two scents involved. **6** For working in search and rescue, banned-substance searches, and disease detection, a dog must be trained to be much more discerning in picking out a designated scent from many different surrounding scents. **7** These working searches often have serious and perhaps life-threatening consequences. **8** Training a dog to discriminate between two different scents is much less intense than training discrimination among many scents.

Which sentence contains repetitive information and can be removed?

- (A) Sentence 3
- (B) Sentence 4
- (C) Sentence 6
- (D) Sentence 8

Section 1: English/Language Arts

3. Read this paragraph.

The championship game was a huge event for the small community. Signs decorated with comments targeting the ___A___ could be seen on lawns all along the route to the stadium. The town's leadership chose to overlook all but the most ___B___ signs, believing that this temporary ___C___ was an innocent demonstration of loyalty to the home team.

Part A

Select the correct form of the word that should be used in the first blank.

- Ⓐ adversity
- Ⓑ adversary
- Ⓒ adverse

Part B

Select the correct form of the word that should be used in the second blank.

- Ⓐ adversity
- Ⓑ adversary
- Ⓒ adverse

Part C

Select the correct form of the word that should be used in the third blank.

- Ⓐ adversity
- Ⓑ adversary
- Ⓒ adverse

GO ON 

Directions

Read the article "Night and Day." Then answer the questions.

Night and Day

- 1 Most people—in fact, most living things—live on a 24-hour day–night schedule, and most cells in the human body have an internal clock that understands this cycle and ticks to its rhythm. The word that describes this rhythm is "circadian," which comes from the Latin roots *circa* ("about") and *dies* ("day"). A master clock in the brain's hypothalamus region regulates the cellular clocks to make sure all are keeping the same time. A person suffering from a neurological disorder known as "non-24" does not have a regulated rhythm that functions normally and often suffers from irregular sleep and wake patterns, which cause issues with his or her ability to function well within the 24-hour period.
- 2 A regularly functioning sleep–wakefulness pattern is important, primarily because we humans deplete our energy resources during awake times and must have sleep to fully restore this energy. We need sleep to happen regularly and naturally, and the master clock controls two circadian processes that are necessary to achieve the quest for regular, natural sleep. The first process is body temperature control. A person's body temperature fluctuates over a 24-hour period, being warmest during the day and coolest at night. The cooling of the body is an important sleep signal. The second process is the production of the hormone melatonin. Specific melatonin receptors in cells throughout the body respond to this hormone. Melatonin helps cool the body during the night, encouraging a person to remain asleep.
- 3 Interestingly, the master clock does not keep perfect 24-hour time. Suppose you ask someone with a normally functioning and regulated circadian rhythm to live in a room with no natural light, and every night you allow him or her to sleep as long as his or her body dictates. That person's master clock will shift such that the body's "day" is about 24.2 hours long. This means that the sleep cycle will be about 12 minutes longer than normal. As those 12 extra minutes add up over time, our person's internal master clock will become completely misaligned with the actual day–night cycle outside the room.

Section 1: English/Language Arts

- 4 Sunlight allows us to reset our master clocks. It is why our sleep cycles are mostly in line with the 24-hour day. The eye's retina, where images are formed, holds some cells that are unrelated to the ability to see. These cells are responsible for sensing exposure to light, particularly early-morning light. When these cells sense light, they send a signal that turns back the master clock. So our theoretical person in the room with no natural light would be back on track as soon as he or she was exposed to daylight.
- 5 A person's master clock controls not only the circadian rhythm but also the related homeostatic system. This system tells the body when it is tired and needs to sleep in order to restore itself for another day. The master clock can tell when the body is running down in this way; if it is not yet time for sleep according to the circadian cycle, the clock sends out alerts to the cells to keep them from shutting down. These signals are called "circadian alertness signals." It is almost impossible to sleep when this signal alerts.
- 6 All systems must work together in order for someone to get a good, recuperative night's sleep that allows for sufficient alertness during the day. However, at certain points things can go wrong. One crucial element is the reset of the master clock that occurs when melanopsin-containing cells are exposed to morning light. For visually-impaired people who have no light sensitivity, their bodies will not perform the morning reset. Their master clocks will shift out of alignment with Earth's 24-hour cycle. When this misalignment happens, non-24 occurs. Sighted people can also have light-sensing cells that fail to function properly. The vision-related cells may work appropriately for them, but if their melanopsin is absent or sending inappropriate signals, they, too, can develop sleep pattern shifts and experience the symptoms of non-24.
- 7 Both sighted and blind people who still have functioning melanopsin-containing cells (some light sensitivity) may be able to reset their master clocks to the 24-hour cycle by using a light box. This apparatus will intentionally expose their eyes to bright blue light, mimicking morning light. People with no light sensitivity will not benefit from using these boxes. For these individuals a treatment option being explored is to prescribe melatonin or melatonin-like supplements to be taken before nighttime as a way of persuading the body's master clock that it is dark outside and time for sleep. Some people with non-24 have simply adapted to their condition rather than trying to change it. They may find jobs that allow them to set their own hours to fit their irregular sleep-wake patterns.

Section 1: English/Language Arts

4. How does the title “Night and Day” reflect the author’s primary purpose?
- Ⓐ The title focuses on a 24-hour period.
 - Ⓑ The title highlights the distinction between light and dark.
 - Ⓒ The title identifies the primary dilemma faced by people suffering from non-24.
 - Ⓓ The title alludes to the regulating forces behind a healthful and normal pattern of wakefulness and sleep.
5. Which details from Paragraphs 4 through 7 BEST support how melanopsin-containing cells work to regulate sleep–wake patterns? Select TWO.
- Ⓐ “The eye’s retina, where images are formed, holds some cells that are unrelated to the ability to see.”
 - Ⓑ “When these cells sense light, they send a signal that turns back the master clock.”
 - Ⓒ “. . . tells the body when it is tired and needs to sleep . . .”
 - Ⓓ “. . . recuperative night’s sleep that allows for sufficient alertness during the day.”
 - Ⓔ “. . . intentionally expose their eyes to bright blue light, mimicking morning light.”

Section 1: English/Language Arts

6. Part A

Based on Paragraph 5, what does *homeostatic system* MOST LIKELY mean?

- Ⓐ a system that processes chemicals
- Ⓑ a system that keeps something stable
- Ⓒ a system that is specific to one location
- Ⓓ a system that manages only one process

Part B

Which sentence from the article BEST supports the answer to Part A?

- Ⓐ "Specific melatonin receptors in cells throughout the body respond to this hormone."
- Ⓑ "As those 12 extra minutes add up over time, our person's internal master clock will become completely misaligned with the actual day-night cycle outside the room."
- Ⓒ "This system tells the body when it is tired and needs to sleep in order to restore itself for another day."
- Ⓓ "All systems must work together in order for someone to get a good, recuperative night's sleep that allows for sufficient alertness during the day."

Section 1: English/Language Arts

7. Which phrases from the article describe how the body signals that it is time to sleep or wake up? Select TWO.
- Ⓐ "ability to function well"
 - Ⓑ "deplete our energy resources"
 - Ⓒ "cooling of the body"
 - Ⓓ "sensing exposure to light"
 - Ⓔ "develop sleep pattern shifts"

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