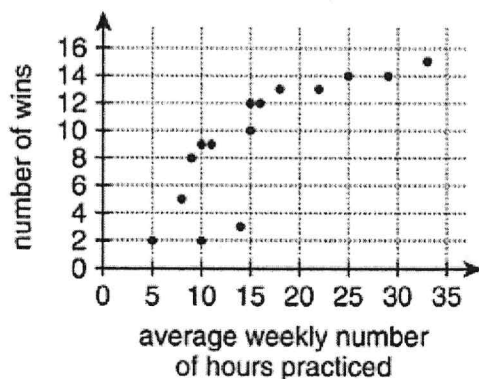


Question 15

Fifteen dancers participated in competitions over the last year. Each point in the scatterplot below represents the average weekly number of hours practiced and the number of wins in competitions for one of the dancers.



One of the following describes the association between the average weekly number of hours practiced and the number of wins. Which one?

- ☐ A. Positive, linear, at least 1 outlier
- ☐ B. Negative, linear, at least 1 outlier
- ☐ C. Positive, nonlinear, at least 1 outlier
- ☐ D. Negative, nonlinear, no outliers
- ☐ E. Negative, nonlinear, at least 1 outlier

Question 16

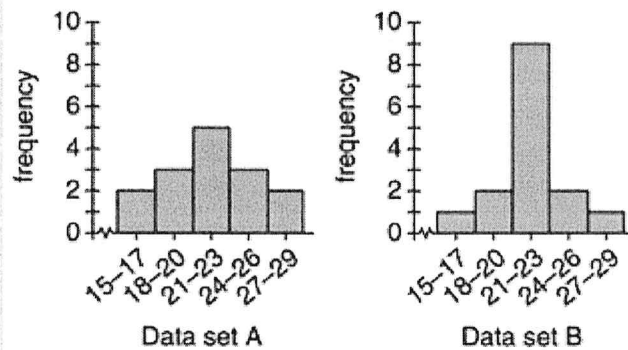
The distance between Earth and the Moon is approximately 2.39×10^5 miles. To the nearest hour, how long would it take for a space shuttle traveling 18,000 mph to make a round-trip from Earth to the Moon and back?

- ☐ A. 13
- ☐ B. 27
- ☐ C. 301
- ☐ D. 1,328
- ☐ E. 7,531

2020 AMI Grades 9-12 Mathematics

Question 17

Histograms for 2 data sets are shown below. Each data set has a total of 15 data values.



Given that each data value is an integer, which of the following statements **MUST** be true?

- ☐ A The mean of Data set A is less than the mean of Data set B.
- ☐ B The median of Data set A is equal to the median of Data set B.
- ☐ C The range of Data set A is equal to the range of Data set B.
- ☐ D The standard deviation of Data set A is equal to the standard deviation of Data set B.
- ☐ E The interquartile range of Data set A is greater than the interquartile range of Data set B.

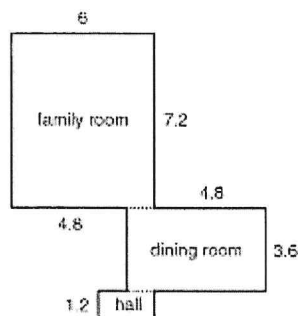
Question 18

For all real values of x , which of the following expressions is equivalent to $\sqrt{36^{4x}}$?

- ☐ A $6^{2\sqrt{x}}$
- ☐ B 6^{2x}
- ☐ C $6^{4\sqrt{x}}$
- ☐ D 6^{4x}
- ☐ E 6^{8x}

Question 19

Molly built a dollhouse that is a scale model of her home. The floor plan for the bottom floor of the dollhouse is shown below, with measurements in inches. The rooms and hall are represented by rectangles.



Molly painted the floors of the 2 rooms and the hall shown in the floor plan. To the nearest 0.01, what is the total area, in square inches, that Molly painted?

Type your answer in decimal form to the hundredths place in the box.

square inches

A student, Jim, was drinking from a glass filled with ice water on a hot day. Jim noticed that water droplets had formed on the outside of the glass and asked where the water came from. Two other students, Maddy and Theo, each tried to answer Jim's question.

Maddy's Viewpoint

Air contains some water. The air contains more water on hot days than on cold days. When the air comes in contact with the cold glass, the water in the air forms water droplets on the outside of the glass.

Theo's Viewpoint

Air does not contain water. The water droplets on the outside of the glass must have come from inside the glass. The water can get outside the glass in one of two ways. One way is that the water can pass through tiny pores in the glass. Another way is that the water can make its way up the side of the glass and over the edge. Water droplets form on a glass only when the water in the glass is colder than the outside air. So, the colder the water, the more likely it will pass through the glass or make its way over the edge of the glass.

13. According to the passage, which of the students, if either, would agree that air contains more water on hot days than on cold days?

- A. Maddy only
- B. Theo only
- C. Both Maddy and Theo
- D. Neither Maddy nor Theo

14. Another student claimed that when air comes in contact with a glass of very hot water, the water in the air forms water droplets on the outside of the glass. Based on the passage, is this claim consistent with Maddy's viewpoint?

- A. Yes; Maddy indicated that water droplets would form on the outside of a warm glass.
- B. Yes; Maddy indicated that water droplets would form on the outside of a cold glass.
- C. No; Maddy indicated that water droplets would form on the outside of a warm glass.
- D. No; Maddy indicated that water droplets would form on the outside of a cold glass.

15. After Maddy and Theo gave their viewpoints, Jim poured ice water into an identical glass and placed a tight-fitting lid on the glass. Then, Jim observed that water droplets still formed on the outside of the glass. Describe how Maddy would explain Jim's observation.

Describe how Theo would explain Jim's observation.

16. Suppose that Theo later learned that the tiny pores in the glass are smaller than the size of a water molecule.

Describe how this new information is INCONSISTENT with part of Theo's explanation.

Describe the part of Theo's explanation that is consistent with this new information.

Reading Comprehension

Make Inferences and Generalizations

Read the passage, and then answer the questions below it.

I looked upon the scene before me—upon the mere house, and the simple landscape features of the domain—upon bleak walls—upon the vacant eyelike windows—upon a few rank sedges¹—and upon a few white trunks of decayed trees—with an utter depression of soul, which I can compare to no earthly sensation more properly than to the afterdream of the reveler upon opium—the bitter lapse into everyday life—the hideous dropping off of the veil.

1. sedges: Grasslike plants.

—“The Fall of the House of Usher” by Edgar Allan Poe

- 1 Which of the following best describes the house?
 - A It is isolated and appears uninhabited.
 - B It is being restored to its former glory.
 - C It is surrounded by smaller buildings.
 - D It is dilapidated, but the garden is maintained.
- 2 Which of the following best describes the overall atmosphere of the property?
 - A reverent
 - B peaceful
 - C magical
 - D haunted
- 3 Which of the following best describes the speaker's attitude toward the scene he is viewing?
 - A thoughtful
 - B distressed
 - C enthusiastic
 - D nostalgic
- 4 Which of the following is most likely true of the speaker?
 - A He is an optimist.
 - B He is easily affected by his surroundings.
 - C He is a coward.
 - D He believes in ghosts.
- 5 According to the passage, which is the best description of the speaker's relationship to the house?
 - A He lives there.
 - B He is riding away from it.
 - C He is approaching the house.
 - D He is describing his first visit to the house.
- 6 Which of the following provides evidence of the supernatural in this story?
 - A The house's windows are eyelike.
 - B The sight of the house makes the speaker depressed.
 - C The house gives the speaker unearthly sensations.
 - D There is no direct evidence of the supernatural in this passage.

Reading Comprehension

Context

Read the passage, and then answer the questions below it.

He looked sadly, mystically, over the breast-work at the green face of a wood,
1
where now were many little puffs of white smoke. During this moment the men
about him gazed statuelike and silent, astonished and awed by this catastrophe
2
which happened when catastrophes were not expected—when they had leisure
to observe it.

As the lieutenant stared at the wood, they too swung their heads, so that for
3
another instant all hands, still silent, contemplated the distant forest as if their
4 5
minds were fixed upon the mystery of a bullet's journey.
6

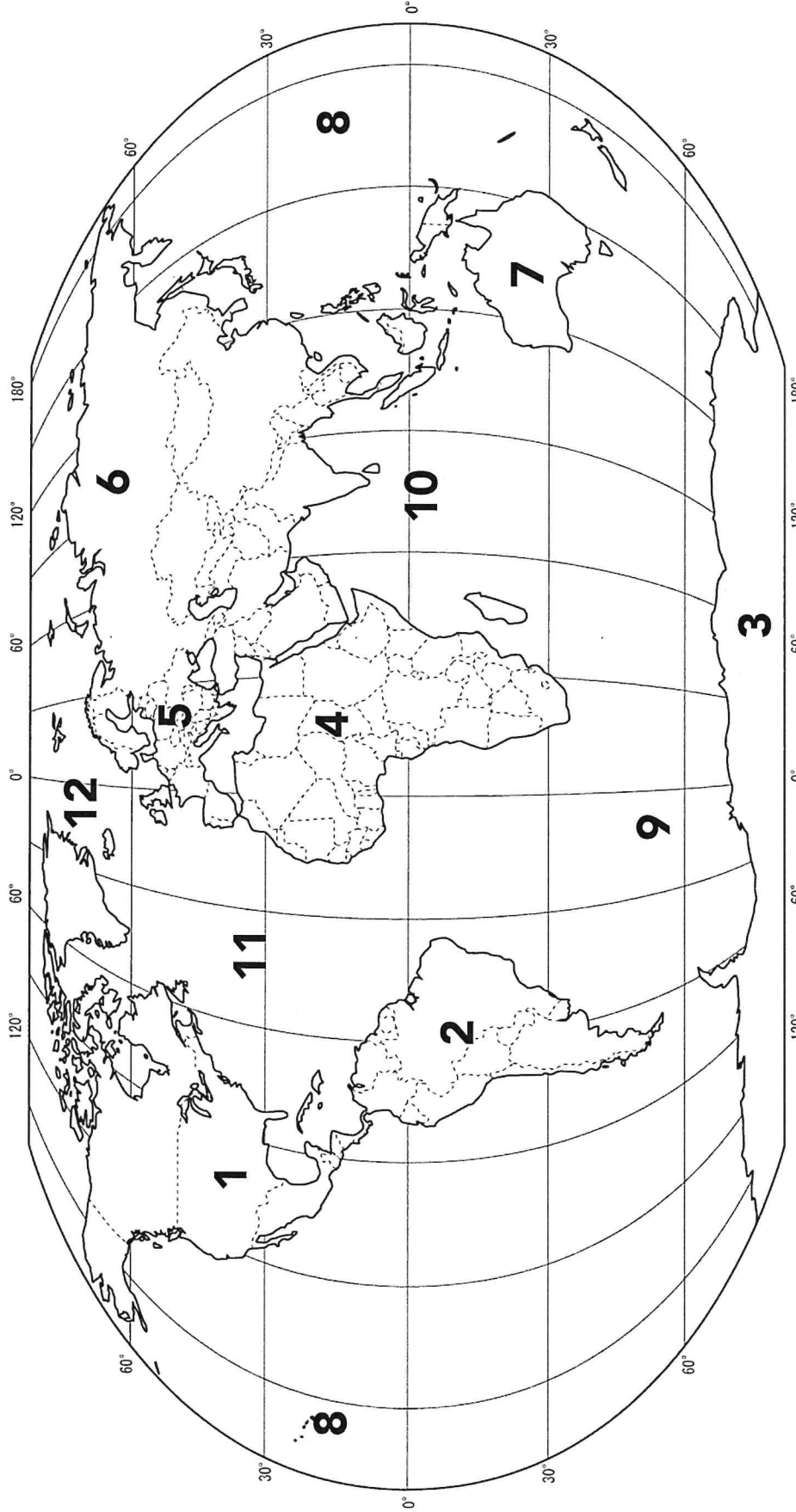
—"An Episode of War" by Stephen Crane

- 1 In this passage, what is the meaning of the figurative expression green face?
A the leaves of trees
B a nauseated soldier
C a fence painted green
D a baby's face
- 2 In this passage, what is the meaning of the figurative expression statuelike?
A very old
B made of marble
C immobile
D valuable
- 3 In this passage, the word wood means—
A plywood
B dense growth of trees
C battalion
D ammunition
- 4 In this passage, the word hands means—
A soldiers
B prisoners
C forearms
D guns
- 5 The word contemplated in this passage means—
A argued with
B ran toward
C observed
D burned
- 6 The word fixed in this passage means—
A repaired
B chafing
C leaping
D concentrated

CONTINENTS AND OCEANS

FSD HS AMI Social Sciences Day 9

Name: _____



Directions: Write the number on the line beside the name of each ocean or continent.

_____ Southern Ocean	_____ Asia	_____ Australia	_____ Indian Ocean
_____ Antarctica	_____ Atlantic Ocean	_____ North America	_____ Arctic Ocean
_____ Africa	_____ Europe	_____ South America	_____ Pacific Ocean

