

AMI Assignment- Day 4

Answer Sheet:

(This sheet should be turned in as a record of your attendance.)

Write in the letter for your answer to each question.

English	Math	Reading	Science
1.	16.	26.	36.
2.	17.	27.	37.
3.	18.	28.	38.
4.	19.	29.	39.
5.	20.	30.	40.
6.	21.	31.	41.
7.	22.	32.	
8.	23.	33.	
9.	24.	34.	
10.	25.	35.	
11.			
12.			
13.			
14.			
15.			

English

Mini-Test 4

PASSAGE IV

Attempts: _____ Correct: _____

Zion National Park

[1]

In a plateau region of Utah that was once a desert,
lays a beautiful
 46

1. F. NO CHANGE
 G. desert lies
 H. desert, lies
 J. desert lays

national park which span nearly 150,000 acres. The Zion
 National Park features the Virgin River, which
 47

2. A. NO CHANGE
 B. park which spans
 C. park, that spanning
 D. park, spans

engraves it's long trail through Navajo sandstone. One of the
 features of the park is Zion Canyon, a narrow gorge so deep
 48
 that sunlight barely reaches the bottom.

3. F. NO CHANGE
 G. one's
 H. its
 J. the

[2]

Along the floor of this canyon which contains
vegetation, it is abundant. The park sits at an
 intersection of ecosystems, which allows a variety of
 49
 more than 800 different kinds of plants to flourish at
 any one time. [50]

4. A. NO CHANGE
 B. It is quite abundant at the floor which is this canyon containing vegetation.
 C. Vegetation along this abundant canyon floor is contained.
 D. Vegetation is abundant along this canyon floor.
5. The author is considering adding a sentence here to convey relevant information concerning vegetation variety. Assuming all of the following are true, which addition best accomplishes this goal?
- F. The widest plant diversity in Utah can be seen at Zion National Park.
 G. Zion National Park also has hanging gardens.
 H. A lot of flowers can be seen in the spring and summer.
 J. A lot of these plants were useful to the Native Americans who once inhabited the area.

GO ON TO THE NEXT PAGE

[3]

The terrain rises nearly a mile high then different ⁵¹ vegetation can be seen with changes in elevation. The park is home to a variety of

animals, that can be seen, by hikers and other nature lovers. ⁵²

Along the river, live bank beavers and many different birds, ⁵³ Throughout the rest of the canyon, birds such as eagles, hawks, falcons, and vultures can be spotted. Foxes, deer, and mountain lions also live within the park.

[4]

The Zion National Park being a popular site ⁵⁴

for climbers even though the sandstone makes it a challenge. ⁵⁵ The same techniques and gear that would work on granite do not work on sandstone because the rock is too loose.

[5]

There are many hiking trails throughout the park that visitors can explore at a leisurely pace. Hiking ⁵⁶ is a great alternative to climbing for those who are inexperienced.

[6]

The climate at Zion National Park changes throughout the year and at different elevations. Visitors ⁵⁷ must be prepared for fluctuating

6. A. NO CHANGE
B. high, then
C. high, and
D. high and

7. F. NO CHANGE
G. animals, that can be seen
H. animals. That can be seen
J. animals that can be seen

8. A. NO CHANGE
B. Along the river, live bank beavers and many different birds:
C. Bank beavers and many different birds, live along the river.
D. Bank beavers and many different birds live along the river.

9. F. NO CHANGE
G. Park is
H. Park was
J. Park,

10. A. NO CHANGE
B. make
C. would make
D. had made

11. F. NO CHANGE
G. park where visitors
H. park; and visitors
J. park, visitors

12. A. NO CHANGE
B. elevations, and, visitors
C. elevations; therefore, and visitors,
D. elevations, and visitors



temperatures, thunderstorms and even wintery snow storms.

58

The best time to visit the park being spring or fall. 60

59

13. F. NO CHANGE
G. thunderstorms, and even,
H. thunderstorms and even,
J. thunderstorms, and even

14. A. NO CHANGE
B. would being
C. is
D. in

15. To enhance the logical progression of the essay, the last paragraph should go:
- F. before paragraph 2.
G. before paragraph 3.
H. before paragraph 4.
J. where it is now.

END OF MINI-TEST FOUR
STOP! DO NOT GO ON TO THE NEXT PAGE
UNTIL TOLD TO DO SO.



Math

Mini Test 4

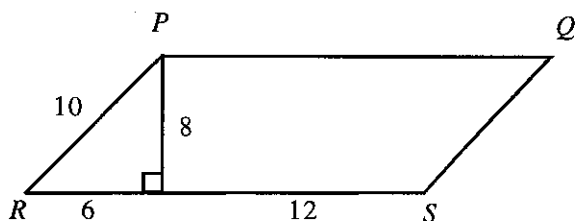
Attempts: _____ Correct: _____

DO YOUR FIGURING HERE.

16. What is the slope-intercept form of $4x - y + 7 = 0$?

A. $y = -4x - 7$
 B. $y = -4x + 7$
 C. $y = x + \frac{4}{7}$
 D. $y = 4x - 7$
 E. $y = 4x + 7$

17. Parallelogram $PQRS$, with dimensions in feet, is shown in the diagram below. What is the area of the parallelogram, in square feet?



F. 48
 G. 96
 H. 120
 J. 144
 K. 180

18. The distance D , in feet, that a ball can be catapulted is given by the equation $D = \frac{2}{3}T + 10$, where T is the applied torque in newtons. What amount of torque, in newtons, must be applied for the ball's distance to be 170 meters?

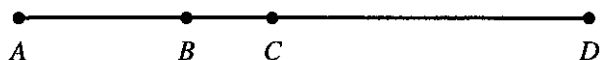
A. 160
 B. 200
 C. 240
 D. 320
 E. 480

19. If $a = b - 3$, then $(b - a)^3 = ?$

F. -81
 G. -27
 H. -9
 J. 9
 K. 27



20. Points B and C lie on line segment \overline{AD} , as shown below. Line segment \overline{AD} is 40 units long, line segment \overline{AC} is 15 units long, and line segment \overline{BD} is 30 units long. How many units long, if it can be determined, is line segment \overline{BC} ?



- A. 20
- B. 15
- C. 10
- D. 5
- E. Cannot be determined from the given information

DO YOUR FIGURING HERE.

Use the following information to answer questions 36–37.

English Enrollment

Course	Section	Period	Enrollment
Composition	A	1	12
English I	A	1	21
	B	4	19
	C	5	20
English II	A	2	15
	B	3	16
English III	A	2	14
English IV	A	3	19

21. What is the average number of students enrolled per section in English I?
- F. 17
 - G. 18
 - H. 19
 - J. 20
 - K. 21

GO ON TO THE NEXT PAGE



- 22.** The school owns 35 anthologies, which students are required to have during their English classes. There are 4 anthologies currently being re-covered, and 1 anthology is currently missing. For which of the following class periods, if any, are there NOT enough anthologies available for each student to have his or her own anthology?

A. Period 1
B. Period 1 & 2
C. Period 1 & 3
D. Period 2 & 3
E. There are enough anthologies for each class period.

- 23.** After polling a class of 30 science students by a show of hands, you find that 12 students enjoy chemistry while 17 students enjoy biology. Given that information, what is the maximum number of students in this class who enjoy both chemistry and biology?

F. 0
G. 5
H. 12
J. 17
K. 29

- 24.** For all positive integers X , Y , and Z , which of the following expressions is equivalent to $\frac{Y}{Z}$?

A. $\frac{Y}{Z} + \frac{X}{Y}$
B. $\frac{Y \cdot Z}{Z \cdot Y}$
C. $\frac{Y + X}{Z + X}$
D. $\frac{Y \cdot X}{Z \cdot X}$
E. $\frac{Y \cdot Y}{Z \cdot Z}$

- 25.** If 120% of a number is 360, what is 50% of the number?

F. 120
G. 150
H. 260
J. 300
K. 480

DO YOUR FIGURING HERE.

END OF MINI TEST FOUR

**STOP! DO NOT GO ON TO THE NEXT PAGE
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Reading

Mini-Test 4

Attempts: _____ Correct: _____

Passage IV

NATURAL SCIENCE: This passage is adapted from *The Life Story of Insects* by George H. Carpenter (©1913 by G.P. Putnam's Sons).

Insects as a whole are preeminently creatures of the land and the air. This is shown not only by the possession of wings by a vast majority of the class but also by the mode of breathing through a system of branching air tubes carrying atmospheric air with its combustion-supporting oxygen to all the insect's tissues. The air gains access to these tubes through a number of paired air holes or *spiracles* arranged segmentally in series.

It is of great interest to find that, nevertheless, a number of insects spend much of their time under water. This is true of not a few in the perfect winged state, as for example aquatic beetles and water bugs ("boatmen" and "scorpions"), which have some way of protecting their spiracles when submerged and, possessing usually the power of flight, can pass on occasion from pond or stream to upper air. But it is advisable in connection with our present subject to dwell especially on some insects that remain continually under water until they are ready to undergo their final molt and attain the winged state, which they pass entirely in the air. The preparatory instars of such insects are aquatic; the adult instar is aerial. All mayflies, dragonflies, caddisflies, many beetles and two-winged flies, and a few moths thus divide their life story between the water and the air. For the present we confine attention to the stoneflies, the mayflies, and the dragonflies.

In the case of many insects that have aquatic larvae, the latter are provided with some arrangement for enabling them to reach atmospheric air through the surface film of the water. But the larva of a stonefly, a dragonfly, or a mayfly is adapted more completely than these for aquatic life; it can, by means of gills of some kind, breathe the air dissolved in water.

The aquatic young of a stonefly does not differ sufficiently in form from its parent to warrant us in calling it a larva; the life history is like that of a cockroach, all the instars, however, except the final one—the winged adult or *imago*—live in the water. The young of one of our large species, a perla for example, has well-chitinized cuticle, broad head, powerful legs, long feelers, and cerci like those of the imago; its wings arise from external rudiments, which are conspicuous in the later aquatic stages. But it lives completely submerged, usually clinging or walking beneath the stones that lie in the bed of a clear stream, and examination of the ventral aspect of the thorax reveals six pairs of tufted gills, by means of which it is

able to breathe the air dissolved in the water wherein it lives. At the base of the tail-feelers or cerci also, there are little tufts of thread-like gills. An insect that is continually submerged and has no contact with the upper air cannot breathe through a series of paired spiracles, and during the aquatic life period of the stonefly, these remain closed. Nevertheless, breathing is carried on by means of the ordinary system of branching air-tubes, the trunks of which are in connection with the tufted hollow gill-filaments, through whose delicate cuticle gaseous exchange can take place, though the method of this exchange is as yet very imperfectly understood. When the stonefly nymph is fully grown, it comes out of the water and climbs to some convenient eminence. The cuticle splits open along the back, and the imago, clothed in its new cuticle, as yet soft and flexible, creeps out. The spiracles are now open, and the stonefly breathes atmospheric air like other flying insects. But throughout its winged life, the stonefly bears memorials of its aquatic past in the little withered vestiges of gills that can still be distinguished beneath the thorax.

26. The author's purpose for writing this passage can best be explained as:

- A. to create a literary manifestation of his love for insects.
- B. to educate readers on the life cycle of insects.
- C. to compare and contrast the stonefly with the dragonfly.
- D. to convince the reader to conserve insect habitats.

27. From the passage, the reader can infer that spiracles are most similar to:

- F. fins.
- G. lungs.
- H. gills.
- J. snorkels.

GO ON TO THE NEXT PAGE

28. The overall tone of the passage is:

- A. informative and insipid.
- B. fascinated and educational.
- C. scholastic and indifferent.
- D. objective and pensive.

29. Which of the following insects is NOT described in this passage as adapting physical features necessary for breathing underwater?

- F. Dragonfly
- G. Stonefly
- H. Beetle
- J. Mosquito

30. Given that *molt* is a verb meaning “to lose feathers, hair, or skin to make way for new growth,” the reader can infer that *instar* (lines 20–21) means:

- A. phase.
- B. scales.
- C. wings.
- D. life.

31. Lines 34–42 indicate that stoneflies:

- F. spend almost all of their instars underwater.
- G. prefer to lay their eggs underwater to protect them from non-aqueous prey.
- H. only spend the first half of their life phases underwater.
- J. hunt in the air but nest underwater.

32. The transformation of a stonefly from water insect to air insect is most like the transformation of:

- A. a human fetus to a grown adult.
- B. a caterpillar to a butterfly.
- C. a tadpole to a frog.
- D. a fish egg to a fish.

33. It can be reasonably inferred that “we confine attention” (lines 24–25) to three species of flies in order to:

- F. provide examples of how typical flies go through some phases of their lives underwater.
- G. prove that some flies are named incorrectly.
- H. teach students about the larvae of all insects.
- J. show that all insects fall into these three categories.

34. Based on the passage as a whole, it is implied that the author believes:

- A. insects that can live in both the air and the water have a better chance of survival.
- B. insects that mature underwater are more likely to develop wings than insects born above water.
- C. insects who have the ability to lay eggs under water have higher offspring success rates.
- D. the dual environments of these insects give them a varied life cycle.

35. In the first line of the passage, it can be inferred that the term *preeminently* is similar to all of the following definitions EXCEPT:

- F. mostly.
- G. primarily.
- H. greatly.
- J. predominantly.

END OF MINI-TEST FOUR

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UNTIL TOLD TO DO SO.**



Science

Mini-Test 4

Passage IV

Attempts: _____ Correct: _____

Human blood cells allow for the influx and efflux of H_2O molecules through semipermeable membranes. Osmotic pressure is the phenomenon that drives this influx and efflux of water. Depending on the concentration of solutes in the blood plasma, it may be hypertonic, isotonic, or hypotonic when compared to the cells themselves.

The plasma is *hypertonic* when it has a higher concentration of solute present outside of the cell than within the cell. Water flows out of the cell as it attempts to achieve homeostasis. This causes the cell to shrink and shrivel.

The plasma is *isotonic* when it has the same concentration of solute present both within the cell and outside it. This causes the cell to remain in equilibrium, or homeostasis, with water flowing both into and out of the cell evenly.

The plasma is *hypotonic* when it has a lower concentration of a solute present outside the cell than within the cell. Water flows into the cell as it attempts to achieve homeostasis. This causes the cell to bloat and burst.

A group of scientists is attempting to create synthetic plasma for hospital patients in need of transfusions. They realize a certain solute is key in the development of this synthetic plasma and use an initial set of solutions to approximate the amount of solute necessary for blood cells to achieve homeostasis. The composition of the four solutions (A, B, C, and D) in ppm (parts per million) are found in Table 1.

Table 1	
Solution	Solute concentration (ppm)
Solution A	980
Solution B	1,150
Solution C	1,245
Solution D	1,350

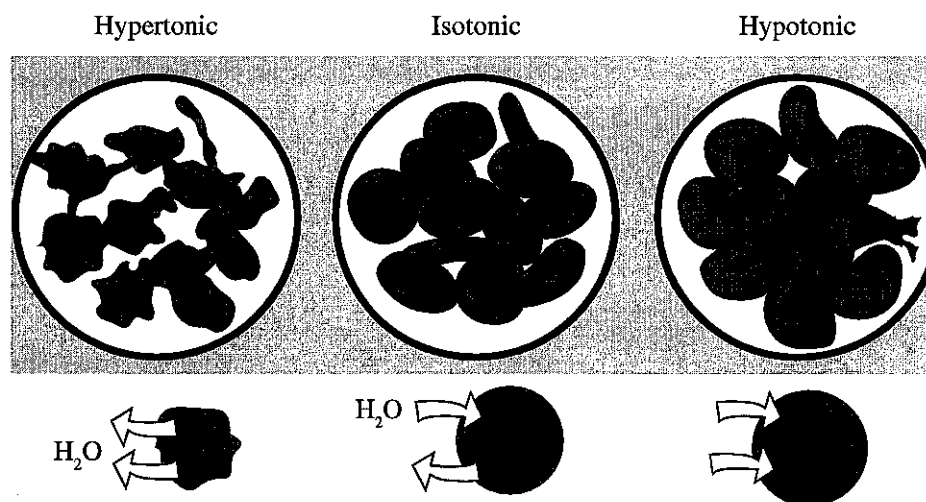


Figure 1

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36. If a cell is placed within a hypertonic solution, it will shrink and shrivel because:

- A. water flows into the cell.
- B. water flows out of the cell.
- C. solutes flow out of the cell.
- D. solutes flow into the cell.

37. If a cell is placed in an isotonic solution, it will remain in homeostasis because:

- F. water flows into and out of the cell.
- G. solutes flow into and out of the cell.
- H. solutes flow into the cell, and water flows out of the cell.
- J. solutes flow out of the cell, and water flows into the cell.

38. Which of the following solutions will best maintain homeostasis for a blood cell with a solute concentration of 1,250 ppm?

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

39. If a blood cell with a solute concentration of 1,250 ppm is placed within Solution D, the plasma will be which type of tonicity compared to the cell, and how will this affect the cell?

- F. Hypertonic; it will shrink and shrivel.
- G. Hypertonic; it will bloat and burst.
- H. Isotonic; it will remain in homeostasis.
- J. Hypotonic; it will bloat and burst.

40. If a blood cell with a solute concentration of 1,250 ppm is placed within Solution B, which type of tonicity will occur, and how will this affect the cell?

- A. Hypertonic; it will shrink and shrivel.
- B. Hypertonic; it will bloat and burst.
- C. Isotonic; it will remain in homeostasis.
- D. Hypotonic; it will bloat and burst.

41. Suppose one of the scientists has a blood sample from a patient but only needs a sample of the plasma. She places the blood sample in one side of a U-shaped tube, separated from the other side of the tube with a semipermeable membrane through which the blood cells cannot pass. She uses a device to produce slight pressure on the filled side of the tube and watches the plasma flow through the semipermeable membrane to the other side, which increases the concentration of the remaining plasma. This process caused the remaining plasma in the blood sample to be which type of tonicity compared to the blood cells?

- F. Hypertonic
- G. Hypotonic
- H. Isotonic
- J. The type of tonicity cannot be determined.