

Summer Reading Assignment

8th Grade English

Due: September 2, 2016

Mr. Lee/Mr. Lemay
Mrs. Carr/ Mrs. Czarnomski

HARRISON BERGERON

by Kurt Vonnegut, Jr.

THE YEAR WAS 2081, and everybody was finally equal. They weren't only equal before God and the law. They were equal every which way. Nobody was smarter than anybody else. Nobody was better looking than anybody else. Nobody was stronger or quicker than anybody else. All this equality was due to the 211th, 212th, and 213th Amendments to the Constitution, and to the unceasing vigilance of agents of the United States Handicapper General.

Some things about living still weren't quite right, though. April for instance, still drove people crazy by not being springtime. And it was in that clammy month that the H-G men took George and Hazel Bergeron's fourteen-year-old son, Harrison, away.

It was tragic, all right, but George and Hazel couldn't think about it very hard. Hazel had a perfectly average intelligence, which meant she couldn't think about anything except in short bursts. And George, while his intelligence was way above normal, had a little mental handicap radio in his ear. He was required by law to wear it at all times. It was tuned to a government transmitter. Every twenty seconds or so, the transmitter would send out some sharp noise to keep people like George from taking unfair advantage of their brains.

George and Hazel were watching television. There were tears on Hazel's cheeks, but she'd forgotten for the moment what they were about.

On the television screen were ballerinas.

A buzzer sounded in George's head. His thoughts fled in panic, like bandits from a burglar alarm.

"That was a real pretty dance, that dance they just did," said Hazel.

"Huh" said George.

"That dance-it was nice," said Hazel.

"Yup," said George. He tried to think a little about the ballerinas. They weren't really very good-no better than anybody else would have been, anyway. They were burdened with sash weights and bags of birdshot, and their faces were masked, so that no one, seeing a free and graceful gesture or a pretty face, would feel like something the cat drug in. George was toying with the vague notion that maybe dancers shouldn't be handicapped. But he didn't get very far with it before another noise in his ear radio scattered his thoughts.

George winced. So did two out of the eight ballerinas.

Hazel saw him wince. Having no mental handicap herself, she had to ask George what the latest sound had been.

"Sounded like somebody hitting a milk bottle with a ball pen hammer," said George.

"I'd think it would be real interesting, hearing all the different sounds," said Hazel a little envious. "All the things they think up."

"Um," said George.

"Only, if I was Handicapper General, you know what I would do?" said Hazel. Hazel, as a matter of fact, bore a strong resemblance to the Handicapper General, a woman named Diana Moon Glampers. "If I was Diana Moon Glampers," said Hazel, "I'd have chimes on Sunday-just chimes. Kind of in honor of religion."

"I could think, if it was just chimes," said George.

"Well-maybe make 'em real loud," said Hazel. "I think I'd make a good Handicapper General."

"Good as anybody else," said George.

"Who knows better than I do what normal is?" said Hazel.

"Right," said George. He began to think glimmeringly about his abnormal son who was now in jail, about Harrison, but a twenty-one-gun salute in his head stopped that.

"Boy!" said Hazel, "that was a doozy, wasn't it?"

It was such a doozy that George was white and trembling, and tears stood on the rims of his red eyes. Two of the eight ballerinas had collapsed to the studio floor, were holding their temples.

"All of a sudden you look so tired," said Hazel. "Why don't you stretch out on the sofa, so's you can rest your handicap bag on the pillows, honeybunch." She was referring to the forty-seven pounds of birdshot in a canvas bag, which was padlocked around George's neck. "Go on and rest the bag for a little while," she said. "I don't care if you're not equal to me for a while."

George weighed the bag with his hands. "I don't mind it," he said. "I don't notice it any more. It's just a part of me."

"You been so tired lately-kind of wore out," said Hazel. "If there was just some way we could make a little hole in the bottom of the bag, and just take out a few of them lead balls. Just a few."

"Two years in prison and two thousand dollars fine for every ball I took out," said George. "I don't call that a bargain."

"If you could just take a few out when you came home from work," said Hazel. "I mean-you don't compete with anybody around here. You just set around."

"If I tried to get away with it," said George, "then other people'd get away with it-and pretty soon we'd be right back to the dark ages again, with everybody competing against everybody else. You wouldn't like that, would you?"

"I'd hate it," said Hazel.

"There you are," said George. The minute people start cheating on laws, what do you think happens to society?"

If Hazel hadn't been able to come up with an answer to this question, George couldn't have supplied one. A siren was going off in his head.

"Reckon it'd fall all apart," said Hazel.

"What would?" said George blankly.

"Society,"

said Hazel uncertainly. "Wasn't that what you just said? "Who knows?" said George.

The television program was suddenly interrupted for a news bulletin. It wasn't clear at first as to what the bulletin was about, since the announcer, like all announcers, had a serious speech impediment. For about half a minute, and in a state of high excitement, the announcer tried to say, "Ladies and Gentlemen."

He finally gave up, handed the bulletin to a ballerina to read.

"That's all right-" Hazel said of the announcer, "he tried. That's the big thing. He tried to do the best he could with what God gave him. He should get a nice raise for trying so hard."

"Ladies and Gentlemen," said the ballerina, reading the bulletin. She must have been extraordinarily beautiful, because the mask she wore was hideous. And it was easy to see that she was the strongest and most graceful of all the dancers, for her handicap bags were as big as those worn by two-hundred pound men.

And she had to apologize at once for her voice, which was a very unfair voice for a woman to use. Her voice was a warm, luminous, timeless melody. "Excuse me-" she said, and she began again, making her voice absolutely uncompetitive.

"Harrison Bergeron, age fourteen," she said in a grackle squawk, "has just escaped from jail, where he was held on suspicion of plotting to overthrow the government. He is a genius and an athlete, is under-handicapped, and should be regarded as extremely dangerous."

A police photograph of Harrison Bergeron was flashed on the screen-upside down, then sideways, upside down again, then right side up. The picture showed the full length of Harrison against a background calibrated in feet and inches. He was exactly seven feet tall.

The rest of Harrison's appearance was Halloween and hardware. Nobody had ever born heavier handicaps. He had outgrown hindrances faster than the H-G men could think them up. Instead of a little ear radio for a mental handicap, he wore a tremendous pair of earphones, and spectacles with thick wavy lenses. The spectacles were intended to make him not only half blind, but to give him whanging headaches besides.

Scrap metal was hung all over him. Ordinarily, there was a certain symmetry, a military neatness to the handicaps issued to strong people, but Harrison looked like a walking junkyard. In the race of life, Harrison carried three hundred pounds.

And to offset his good looks, the H-G men required that he wear at all times a red rubber ball for a nose, keep his eyebrows shaved off, and cover his even white teeth with black caps at snaggle-tooth random.

"If you see this boy," said the ballerina, "do not-I repeat, do not-try to reason with him."

There was the shriek of a door being torn from its hinges.

Screams and barking cries of consternation came from the television set. The photograph of Harrison Bergeron on the screen jumped again and again, as though dancing to the tune of an earthquake.

George Bergeron correctly identified the earthquake, and well he might have-for many was the time his own home had danced to the same crashing tune. "My God-" said George, "that must be Harrison!"

The realization was blasted from his mind instantly by the sound of an automobile collision in his head.

When George could open his eyes again, the photograph of Harrison was gone. A living, breathing Harrison filled the screen.

Clanking, clownish, and huge, Harrison stood - in the center of the studio. The knob of the uprooted studio door was still in his hand. Ballerinas, technicians, musicians, and announcers cowered on their knees before him, expecting to die.

"I am the Emperor!" cried Harrison. "Do you hear? I am the Emperor! Everybody must do what I say at once!" He stamped his foot and the studio shook.

"Even as I stand here" he bellowed, "crippled, hobbled, sickened-I am a greater ruler than any man who ever lived! Now watch me become what I can become!"

Harrison tore the straps of his handicap harness like wet tissue paper, tore straps guaranteed to support five thousand pounds.

Harrison's scrap-iron handicaps crashed to the floor.

Harrison thrust his thumbs under the bar of the padlock that secured his head harness. The bar snapped like celery. Harrison smashed his headphones and spectacles against the wall.

He flung away his rubber-ball nose, revealed a man that would have awed Thor, the god of thunder.

"I shall now select my Empress!" he said, looking down on the cowering people. "Let the first woman who dares rise to her feet claim her mate and her throne!"

A moment passed, and then a ballerina arose, swaying like a willow.

Harrison plucked the mental handicap from her ear, snapped off her physical handicaps with marvelous delicacy. Last of all he removed her mask.

She was blindingly beautiful.

"Now-" said Harrison, taking her hand, "shall we show the people the meaning of the word dance? Music!" he commanded.

The musicians scrambled back into their chairs, and Harrison stripped them of their handicaps, too. "Play your best," he told them, "and I'll make you barons and dukes and earls."

The music began. It was normal at first-cheap, silly, false. But Harrison snatched two musicians from their chairs, waved them like batons as he sang the music as he wanted it played. He slammed them back into their chairs. The music began again and was much improved.

Harrison and his Empress merely listened to the music for a while-listened gravely, as though synchronizing their heartbeats with it. They shifted their weights to their toes. Harrison placed his big hands on the girl's tiny waist, letting her sense the weightlessness that would soon be hers. And then, in an explosion of joy and grace, into the air they sprang! Not only were the laws of the land abandoned, but the law of gravity and the laws of motion as well.

They reeled, whirled, swiveled, flounced, capered, gamboled, and spun. They leaped like deer on the moon. The studio ceiling was thirty feet high, but each leap brought the dancers nearer to it. It became their obvious intention to kiss the ceiling. They kissed it. And then, neutralizing gravity with love and pure will, they remained suspended in air inches below the ceiling, and they kissed each other for a long, long time.

It was then that Diana Moon Glampers, the Handicapper General, came into the studio with a double-barreled ten-gauge shotgun. She fired twice, and the Emperor and the Empress were dead before they hit the floor. Diana Moon Glampers loaded the gun again. She aimed it at the musicians and told them they had ten seconds to get their handicaps back on.

It was then that the Bergerons' television tube burned out. Hazel turned to comment about the blackout to George. But George had gone out into the kitchen for a can of beer. George came back in with the beer, paused while a handicap signal shook him up. And then he sat down again. "You been crying" he said to Hazel.

"Yup," she said.

"What about?" he said.

"I forget," she said. "Something real sad on television."

"What was it?" he said.

"It's all kind of mixed up in my mind," said Hazel.

"Forget sad things," said George.

"I always do," said Hazel.

"That's my girl," said George. He winced. There was the sound of a rivetting gun in his head.

"Gee-I could tell that one was a doozy," said Hazel.

"You can say that again," said George.

"Gee-" said Hazel, "I could tell that one was a doozy."

Name: _____

Mr. Lee/Mrs. Carr/Mr. Lemay/Mrs. Czarnomski
William Floyd Middle School
8th Grade English Language Arts

Date: _____

HARRISON BERGERON

Part I: Vocabulary

Directions: Look up and define each word then use each word correctly in a sentence using context clues.

CEASE Definition: _____
Sentence: _____

VIGILANT Definition: _____
Sentence: _____

VAGUE Definition: _____
Sentence: _____

WINCE Definition: _____
Sentence: _____

ENVY Definition: _____
Sentence: _____

HINDER Definition: _____
Sentence: _____

IMPEDE Definition: _____

Sentence:

HIDEOUS Definition: _____

Sentence:

SPECTACLE Definition: _____

Sentence:

CONSTERNATION Definition: _____

Sentence:

Name: _____

Mr. Lee/Mrs. Carr/Mr. Lemay/Mrs. Czarnomski
William Floyd Middle School
8th Grade English Language Arts

Date: _____

HARRISON BERGERON

Part II: Reading Comprehension

Directions: Answer using complete sentences and details to support.

1. How was everyone equal in the year 2081?

2. What happened in April to the Bergeron family?

3. What devices does George need to wear because he was more intelligent?

4. How do you think that device stops George from being more intelligent?

5. Describe what were the ballerinas on television wearing.

6. Why do you think the ballerinas needed to wear "bags of birdshot" and masks?

7. What was George trying to figure out before he heard the noise in his ear radio?

8. Who is Dianna Moon Glampers?

9. What do you think Diana Moon Glampers job title means she does for a job?

10. What suggestion does Hazel make for George because he looks so tired?

11. Why can't George just take out some lead balls from his handicap bag?

12. What reason(s) do George and Hazel give for why people should not cheat the laws?

13. Why do you think "all announcers had a serious speech impediment?" Explain.

14. Why was Harrison put into jail?

15. Describe the types of handicaps Harrison needed to wear.

16. Why do you think Harrison were given all of those handicaps?

17. What was Harrison trying to prove when he and his "Empress" danced to the music? Explain.

18. What did Harrison mean when he said,
Even as I stand here...crippled, hobbled, sickened - I am a greater ruler than any man who ever lived! Now watch me become what I can become!

19. Why was Hazel was crying?

20. Why can't George and Hazel remember what happened to their son?

Name: _____

Mr. Lee/Mrs. Carr/Mr. Lemay/Mrs. Czarnomski
William Floyd Middle School
8th Grade English Language Arts

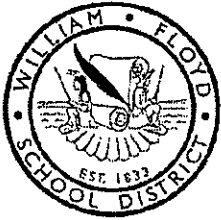
Date: _____

HARRISON BERGERON

Part III: Extended Response

Directions: Please answer the question in 1-2 complete paragraphs. Be sure to fully explain your response using details from the text.

The world of 2081 in HARRISON BERGERON is a world that claims to be "equal" for everyone. Do you believe they were successful in creating an "equal" society? Why or why not? Explain, and use examples from the text.



William Floyd Union Free School District

of the MASTICS - MORICHES - SHIRLEY

Our rich history builds a promising future!

Kevin M. Coster
Superintendent of Schools

William Floyd Middle School
Carolyn Schick, Principal
Dr. Thomas J. Heintz, Assistant Principal
Dr. Eugenia N. Jackolski, Assistant Principal

This summer review packet is designed to help you make a smooth transition into your eighth grade math class. The problems review key concepts and skills that you have previously learned in seventh grade mathematics. You may use any notes, examples, and resources that you have to help you solve these review problems. There are also many online resources and websites that can provide you with helpful information and opportunities to review essential topics from last year. The sites listed below provide instructional videos, lessons, practice problems, and more to help you re-master these important topics.

www.khanacademy.org, www.freemathhelp.com, www.hippocampus.org, www.algebrahelp.com

The attached packet will be collected on Friday September 2nd. The summer review packet will be your first graded assignment for the first quarter of the 2016 – 2017 school year. In order to receive full credit, be sure to answer all questions and ***show all work that is necessary for each problem.***

Doing homework is more than just completing the problems on a page, it is a learning experience designed to help you succeed. We encourage you to work together with other classmates and collaborate to make the most out of this review experience

It is strongly recommended that you break this assignment up throughout the course the summer and do a few problems each day. ***Do not leave the entire assignment for the day before school begins.***

Have a great summer.

Sincerely,

WFMS Grade 8 Math Teachers

WFMS Grade 8 Math Teachers



BOARD OF EDUCATION

Robert Vecchio, President • Jeananne Dawson, Vice President • Joseph Barone • Thomas A. Gross • Robert Guerriero • Anthony Speruta • Robert Taiani

240 Mastic Beach Road, Mastic Beach, New York 11951-1028/(631)874-5505/(631)878-7690(Fax)

www.wfsd.k12.ny.us



William Floyd Middle School

ALGEBRA I

SUMMER PACKET

Student Name: _____ Teacher: _____

Record your answers for #1-50 below. Answers must be bubbled in in BLUE or BLACK PEN.
Be sure to show all necessary work in the packet in order to receive full credit.

- | | | |
|---------------------|---------------------|-----------|
| 1. (A) (B) (C) (D) | 18. (A) (B) (C) (D) | 35. _____ |
| 2. (A) (B) (C) (D) | 19. (A) (B) (C) (D) | 36. _____ |
| 3. (A) (B) (C) (D) | 20. (A) (B) (C) (D) | 37. _____ |
| 4. (A) (B) (C) (D) | 21. (A) (B) (C) (D) | 38. _____ |
| 5. (A) (B) (C) (D) | 22. (A) (B) (C) (D) | 39. _____ |
| 6. (A) (B) (C) (D) | 23. (A) (B) (C) (D) | 40. _____ |
| 7. (A) (B) (C) (D) | 24. (A) (B) (C) (D) | 41. _____ |
| 8. (A) (B) (C) (D) | 25. (A) (B) (C) (D) | 42. _____ |
| 9. (A) (B) (C) (D) | 26. (A) (B) (C) (D) | 43. _____ |
| 10. (A) (B) (C) (D) | 27. (A) (B) (C) (D) | 44. _____ |
| 11. (A) (B) (C) (D) | 28. (A) (B) (C) (D) | 45. _____ |
| 12. (A) (B) (C) (D) | 29. (A) (B) (C) (D) | 46. _____ |
| 13. (A) (B) (C) (D) | 30. (A) (B) (C) (D) | 47. _____ |
| 14. (A) (B) (C) (D) | 31. (A) (B) (C) (D) | 48. _____ |
| 15. (A) (B) (C) (D) | 32. (A) (B) (C) (D) | 49. _____ |
| 16. (A) (B) (C) (D) | 33. (A) (B) (C) (D) | 50. _____ |
| 17. (A) (B) (C) (D) | 34. (A) (B) (C) (D) | |

Name: _____

Date: _____

Period: _____

Algebra 1 Summer Review Packet

Directions: Read each question carefully, select the letter of the correct answer, and show all work on a separate sheet of paper. Record all answers on the provided scantron answer sheet.

1. Which verbal expression is represented by $\frac{1}{2}(n - 3)$

A one-half n decreased by 3

B one-half n subtracted from 3

C the difference of one-half and 3

D one-half the difference of n and 3

2. Marcy determined that her father's age is four less than three times her age. If x represents Marcy's age, which expression represents her father's age?

A $3x - 4$

B $3(x - 4)$

C $4x - 3$

D $4 - 3x$

3. If five times a number is less than 55, what is the greatest possible integer value of the number?

A 12

B 11

C 10

D 9

4. Mrs. Porter recorded her student's grades in the frequency table below.

Score	Frequency
96	2
92	5
88	3
84	2
78	4
60	1

Which statement is true for the data?

A mean > median > mode

B mean > mode > median

C mode > median > mean

D median > mean > mode

5. When $5x + 4y$ is subtracted from $5x - 4y$, the difference is

- A 0 B $10x$ C $8y$ D $-8y$

6. It takes Tammy 45 minutes to ride her bike 5 miles. At this rate, how long will it take for her to ride 8 miles?

- A 0.89 hour B 1.125 hours C 48 minutes D 72 minutes

7. Which value of p is the solution of $5p - 1 = 2p + 20$?

- A $\frac{19}{7}$ B $\frac{19}{3}$ C 3 D 7

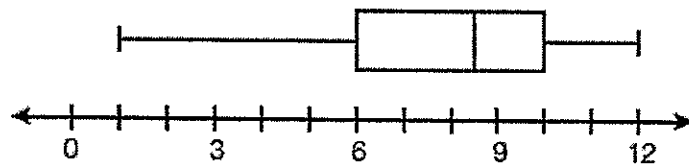
8. The statement $2 + 0 = 2$ is an example of the use of which property of real numbers?

- A associative B additive identity C additive inverse D distributive

9. Which value of x is in the solution set of the inequality $-4x + 2 > 10$?

- A -2 B 2 C 3 D -4

10. What is the value of the third quartile shown on the box-and-whisker plot below?



- A 6 B 8.5 C 10 D 12

11. Which value of x is in the solution set of the inequality $-2(x - 5) < 4$?

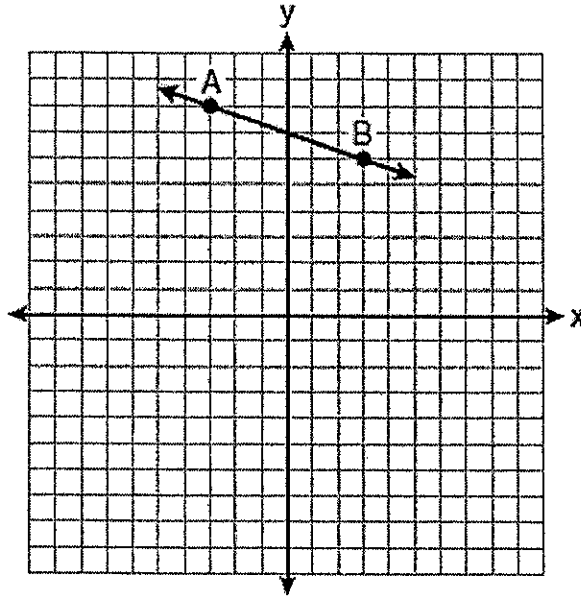
A 0

B 2

C 3

D 5

12. What is the slope of the line passing through the points A and B, as shown on the graph below?



A -3

B $-\frac{1}{3}$

C 3

D $\frac{1}{3}$

13. What is the perimeter of a square with a side length of: $x + 4$?

A $x^2 + 16$

B $4x + 16$

C $5x + 4$

D $5x + 20$

14. An example of an algebraic expression is

A $x + 2$

B $y = x + 2$

C $y < x + 2$

D $y = x^2 + 2x$

15. The number of calories burned while jogging varies directly with the number of minutes spent jogging. If George burns 150 calories by jogging for 20 minutes, how many calories does he burn by jogging for 30 minutes?

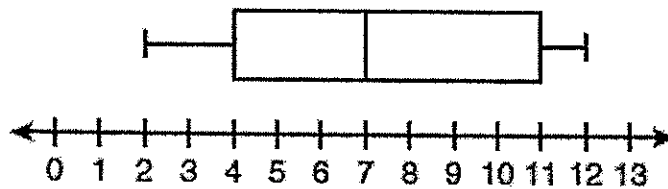
A 100

B 180

C 200

D 225

16. Based on the box-and-whisker plot below, which statement is *false*?



- A The median is 7.
B The range is 12.
C The first quartile is 4.
D The third quartile is 11.
17. Mr. Turner bought x boxes of pencils. Each box holds 25 pencils. He left 3 boxes of pencils at home and took the rest to school. Which expression represents the total number of pencils he took to school?

- A $22x$ B $25x - 3$ C $25 - 3x$ D $25x - 75$

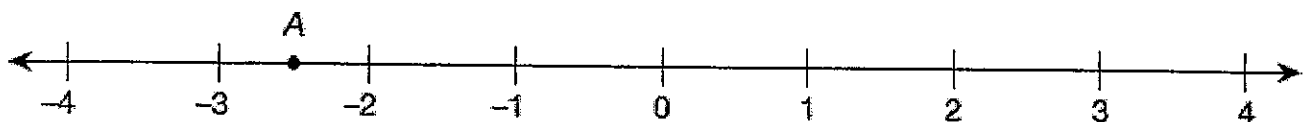
18. What is the solution to the equation $2(x + 3) = -16$?

- A 5 B -11 C -4 D -5

19. As a salesperson at Sam's Shoe Store you are paid \$100 per week plus \$3 per sale. This week you want your pay to be at least \$150. Which inequality statement represents this situation?

- A $150 \leq 100 + 3x$ B $150 \leq 100 - 3x$
C $150 \geq 100 + 3x$ D $150 \geq 100 - 3x$

20. Point A is plotted on the number line shown below.



- Which number below is the additive inverse of the number that is represented by point A?

- A -3.5 B -2.5 C 2.5 D 3.5

21. A number line is shown in the space below.



Which of the following expressions represents the distance between -4 and 3 on the number line?

- A $|-4 + 3|$ B $|-4 - 3|$ C $|-4 - (-3)|$ D $|3 - 4|$

22. Palladium is a chemical element with the chemical symbol Pd and an atomic number of 46. It is a rare and lustrous silvery-white metal. A neutral atom of palladium has 46 positive protons and negative electrons. Which expression below represents how the protons and electrons create a neutral charge for this atom?

- A $-46 - 46$ B $46 - (-46)$ C $46 + (-46)$ D $46 + 46$

23. What is one possible solution to the inequality $5x - 3 < 27$?

- A 8 B 7 C 6 D 5

24. Toby bought a pair of jeans and a sweater. The pair of jeans cost \$30 and the sweater cost \$35. If sales tax is 6%, how much did Toby spend in total for the jeans and sweater?

- A \$65.12 B \$66.80 C \$68.90 D \$71.00

25. When John bought his new computer, he purchased an online computer help service. The help service has a yearly fee of \$25.50 and a \$10.50 charge for each help session a person uses. If John can only spend \$170 for the computer help this year, what is the maximum number of help sessions he can use this year?

- A 12 B 14 C 13 D 15

26. An elevator moves at a constant speed of 32 feet per second. If this proportional relationship is shown on a coordinate graph, which point will not fall on the graph?

- A (1, 32) B (2, 64) C (3, 92) D (4, 128)

27. Solve for x .

$$6(4x - 5) = 36$$

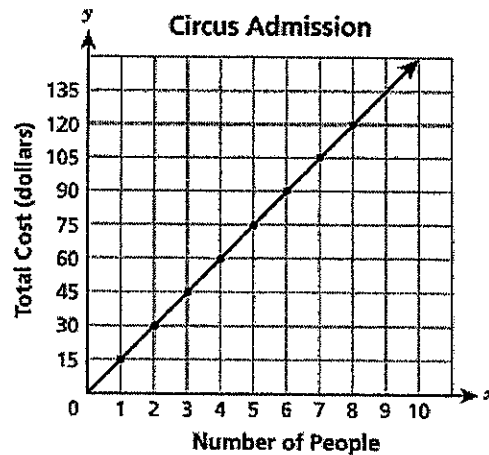
A $x = 0.25$

B $x = 1.708$

C $x = 2.75$

D $x = 16.5$

28. The graph below shows the relationship between the number of people in a group and the total cost of admission tickets for a circus



What point on the graph represents the unit rate?

A $(0, 0)$

B $(1, 15)$

C $(15, 1)$

D $(8, 120)$

29. What is the decimal equivalent of $\frac{7}{8}$?

A 0.780

B 0.870

C 0.875

D 0.885

30. Find the slope of the line that passes through $(1,3)$ and $(2,7)$.

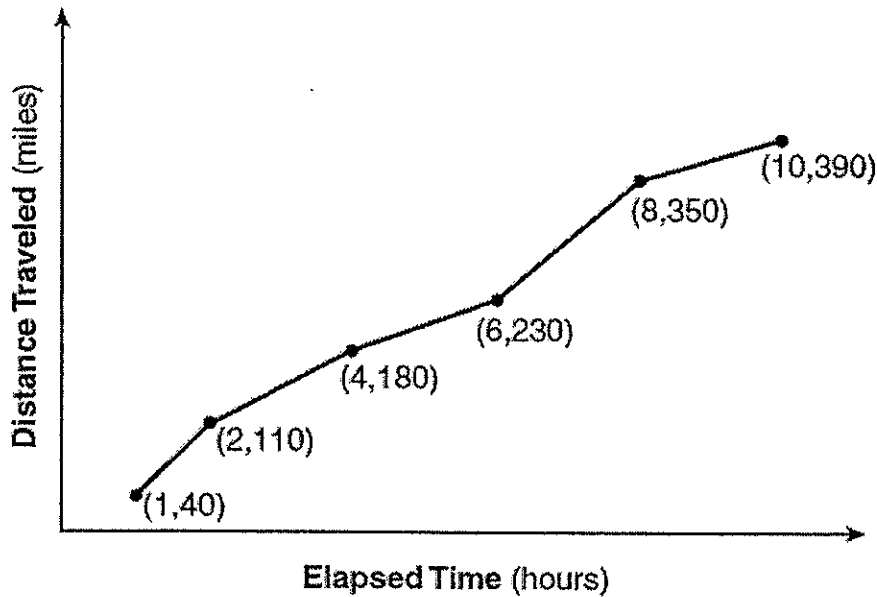
A -4

B $-\frac{1}{4}$

C 4

D $\frac{1}{4}$

31. The Jamison family kept a log of the distance they traveled during a trip, as represented by the graph below.



During which interval was their average speed the greatest?

- A. the first hour to the second hour
- B. the second hour to the fourth hour
- C. the sixth hour to the eighth hour
- D. the eighth hour to the tenth hour

32) Katie saved five dollars more than twice the amount that Rachel saved, r . Which expression represents the amount that Katie saved?

A. $2r + 5$

B. $2r - 5$

C. $5 - 2r$

D. $2 + r - 5$

33) What is the **y-intercept** of the graph of the line whose equation is $y = -\frac{2}{5}x + 4$?

A. $(0, -\frac{2}{5})$

B. $(0, 0)$

C. $(0, 4)$

D. $(-\frac{2}{5}, 4)$

34) What is the slope of the linear equation given?

$$10x + 5y = -15$$

A. 2

B. -2

C. -10

D. 10

Directions: Read each question carefully and show all work. Record all answers on the provided answer sheet on the front of this packet. Be sure to show ALL necessary work in the packet in order to receive full credit.

Find the total cost to the nearest cent.

35) \$1,500 computer; 8% tax

36) \$64 Jacket; 20% discount

Evaluate each expression if $d = 8$, $e = 3$, $f = 4$, and $g = -1$.

37) $\frac{f-d}{2}$

38) $\frac{2eg}{2}$

Write each expression in simplest form

39) $-4x - 1 - 4x + 6$

40) $y + 4y - 7y - 1$

Add.

41) $(-4x + 3) + (-2x + 8)$

42) $(-5x + 4) + 2(x - 1)$

Subtract.

43) $(-x + 3) - (x - 5)$

44) $(9x + 5) - (4x + 3)$

Solve each equation.

45) $3x + 1 = 10$

46) $-4w - 4 = 8$

47) $8(x + 3) = 72$

48) $-28 = 7(n + 3)$

Solve each inequality.

49) $4x - 13 < 11$

50) $15 + 11x \geq -73$

1. Base your answer to the following question on the information below and on your knowledge of biology.

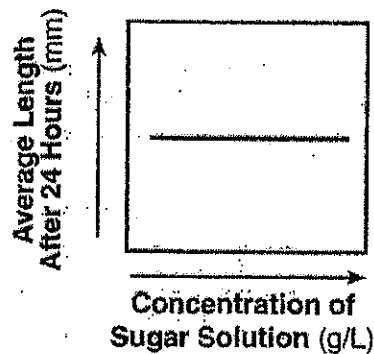
Students cut 20 rod-shaped pieces of potato of the same diameter and length. Five pieces of potato were placed into each of four beakers containing different concentrations of sugar solutions. Each potato piece was measured again after 24 hours. The table below shows the results of their experiment.

Change in Length

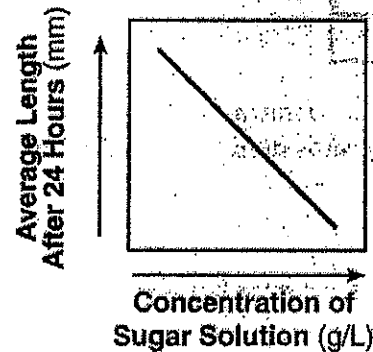
Concentration of Sugar Solution (grams per liter)	Original Length of Potato Pieces (mm)	Average Length After 24 Hours (mm)
0	50.0	52.0
5	50.0	44.0
8	50.0	43.5
10	50.0	42.5

Which graph best represents the information in the data table above?

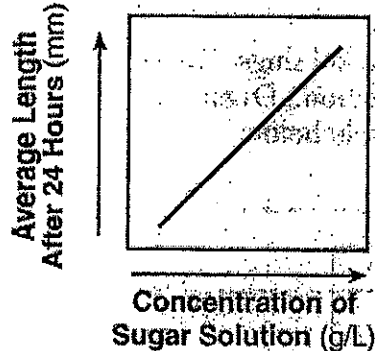
(A)



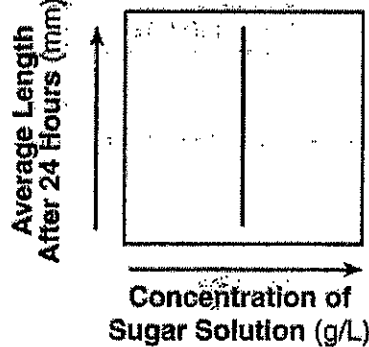
(C)



(B)

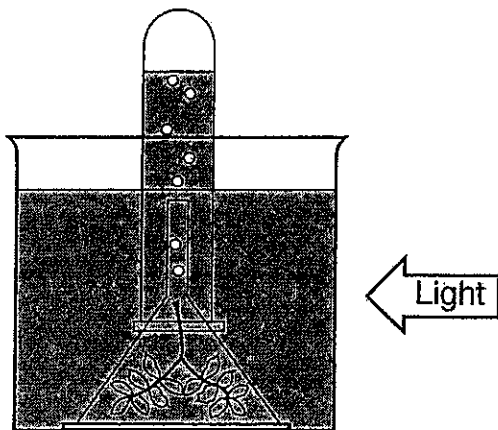


(D)



(4)

2. An experiment was set up to test the effect of light intensity on the rate of photosynthesis, as shown in the diagram below.



Data were collected by counting gas bubbles released in a 5-minute period when the light source was placed at various distances from the experimental setup. The data are shown in the table below.

Data Table

Distance From Light (cm)	Bubbles in 5-Minute Period
15	27
23	20
30	13
45	6

The number of bubbles released when the light source is at a distance of 38 centimeters would most likely be closest to

- (A) 10 (B) 6 (C) 22 (D) 13

3. The development of an experimental research plan should *not* include a

- (A) conclusion based on data expected to be collected in the experiment
- (B) list of safety precautions for the experiment
- (C) list of equipment needed for conducting the experiment
- (D) procedure for the use of technologies needed for the experiment

4. Reasons for conducting peer review include all of the following *except*

- (A) analyzing the experimental design
- (B) pointing out possible bias
- (C) identifying an illogical conclusion
- (D) changing data to support the hypothesis

5. Base your answer to the following question on the investigation described below and on your knowledge of biology.

Twelve bean plants were used to study the effect of nutrients on the rate of plant growth. All the plants used in this investigation were initially the same height. Starting on day 1, six of the bean plants (Group A) were given 30 milliliters of distilled water every day for seven consecutive days. Starting on the same day, the other six bean plants (Group B) were given 30 milliliters of distilled water containing 0.1 gram of fertilizer every day for seven consecutive days. The average daily change in height of the plants in each group is shown in the data table below.

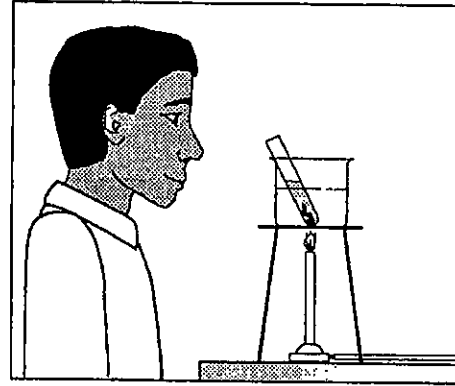
DATA TABLE

Day	Average Daily Increase in Plant Height (mm)	
	Group A	Group B
1	0	0
2	2	4
3	1	3
4	3	5
5	2	5
6	2	4
7	1	4

The independent variable in this investigation was the

- (A) number of bean plants in each group
- (B) initial height of each bean plant
- (C) amount of nutrient fed to each group of bean plants
- (D) amount of water given daily to each plants

6. Base your answer on the diagram below and on your knowledge of biology.



Which statement describes *two* unsafe laboratory practices represented in the diagram?

- (A) The beaker has water in it and the flame is under the tripod.
 - (B) The flame is too high and the test tube is unstoppered.
 - (C) The opening of the test tube is pointed toward the student and the student is not wearing goggles.
 - (D) The test tube is unstoppered and the student is not wearing goggles.
7. In 1910, Thomas Morgan discovered a certain pattern of inheritance in fruit flies known as sex linkage. This discovery extended the ideas of inheritance that Gregor Mendel had discovered while working with garden peas in 1865. Which principle of scientific inquiry does this illustrate?
- (A) The same experiment must be repeated many times to validate the results.
 - (B) Scientific explanations can be modified as new evidence is found.
 - (C) A control group must be part of a valid experiment.
 - (D) Values can be used to make ethical decisions about scientific discovery.

Base your answers to questions 8 and 9 on the information below, and on your knowledge of biology.

An experiment was carried out to answer the question "Does the pH of water affect the growth of radish plants?" Two groups of ten radish plants were set up. One group was watered with water having a pH of 3.0, and the other group was watered with water having a pH of 7.0. Both groups of plants received the same amount and intensity of light, the same amount of water, and they were grown in the same type of soil. The heights of the radish plants were measured every 2 days for a period of 2 weeks.

8. Which sentence is a possible hypothesis that was tested in this experiment?
- (A) The temperature of the water will affect the heights of the radish plants.
 - (B) Will the amount of water alter the heights of the radish plants?
 - (C) Does the pH of water affect the growth of radish plants?
 - (D) The pH of the water will affect the heights of the radish plants.
9. What was the dependent variable in this experiment?
- (A) heights of the plants
 - (B) type of soil
 - (C) temperature of the water
 - (D) pH of the water
-
10. Diagrams, tables, and graphs are used by scientists mainly to
- (A) organize data
 - (B) test a hypothesis
 - (C) predict the independent variable
 - (D) design a research plan for an experiment

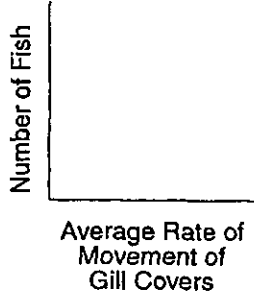
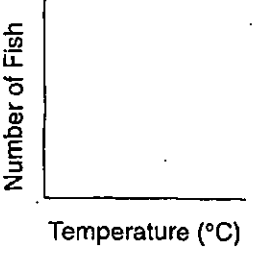
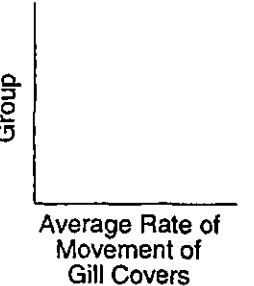
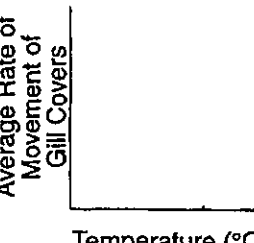
11. A company that manufactures a popular multivitamin wanted to determine whether their multivitamin had any side effects. For its initial study, the company chose 2000 individuals to take one of their multivitamin tablets per day for one year. Scientists from the company surveyed the participants to determine whether they had experienced any side effects. The greatest problem with this procedure is that
- (A) the sample size was not large enough
 - (B) the study lasted only one year
 - (C) no control group was used
 - (D) only one brand of vitamin was tested
12. An experiment was carried out to determine whether drinking caffeinated soda increases pulse rate. The pulse rates of two groups of people at rest were measured. Group *A* was then given caffeinated soda and group *B* was given caffeine-free soda. One hour after drinking the soda, the pulse rates were measured. The participants in the experiment were all the same age, and they were all given the same amount of soda.
- What is the dependent variable in this experiment?
- (A) age of participants in each group
 - (B) pulse rate of each group
 - (C) type of soda given to each group
 - (D) amount of soda given to each group
13. Which statement describes the best procedure to determine if a vaccine for a disease in a certain bird species is effective?
- (A) Vaccinate 50 birds, do not vaccinate 50 other birds, and expose all 100 to the disease.
 - (B) Vaccinate 50 birds, do not vaccinate 50 other birds, and expose only the vaccinated birds to the disease.
 - (C) Vaccinate 100 birds and expose only 50 of them to the disease.
 - (D) Vaccinate 100 birds and expose all 100 to the disease.

14. In an investigation, students determined the average rate of movement of gill covers of a species of freshwater fish at different temperatures. The results are shown in the data table below.

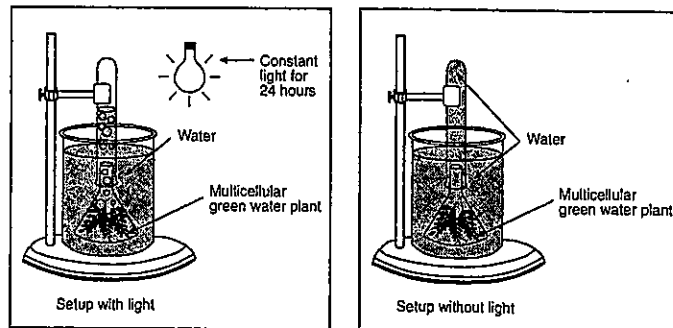
Data Table

Group	Number of Fish	Temperature (°C)	Average Rate of Movement of Gill Covers per Minute
1	5	10	15
2	6	15	25
3	4	18	30
4	7	20	38
5	6	23	60
6	4	25	57
7	4	27	25

Which labeled axes should be used to graph the relationship between the two variables?

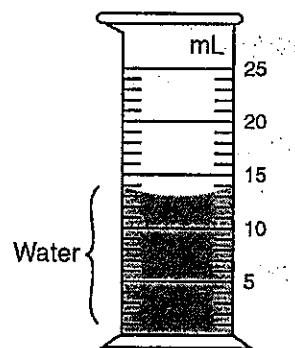
- (A) 
- (B) 
- (C) 
- (D) 

15. An experimental setup is shown in the diagram below.



Which hypothesis would most likely be tested using this setup?

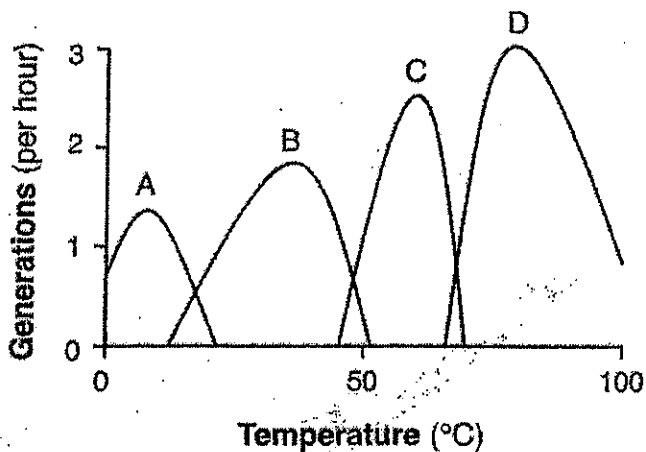
- (A) Green water plants release a gas in the presence of light.
- (B) Green plants need light for cell division.
- (C) Plants grow best in the absence of light.
- (D) Roots of water plants absorb minerals in the absence of light.
16. What is the volume of water represented in the graduated cylinder shown below? (Remember to look at the bottom of the curve)



- (A) 15.0 mL (C) 14.0 mL
- (B) 13.0 mL (D) 10.3 mL

17. Tomato plants in a garden are not growing well. The gardener hypothesizes that the soil is too acidic. To test this hypothesis accurately, the gardener could
- (A) change the pH of the soil
 - (B) move the tomato plants to an area with less sunlight
 - (C) reduce the amount of water available to the plant
 - (D) plant seeds of a different kind of plant

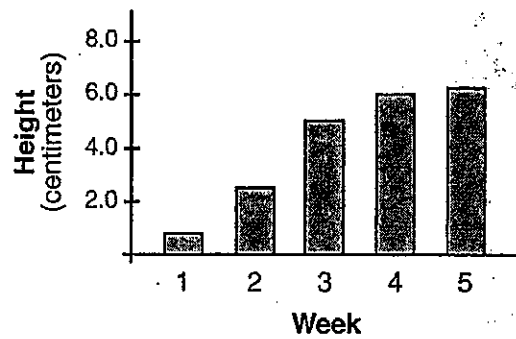
18. The graph below provides information about the reproductive rates of four species of bacteria, A, B, C, and D, at different temperatures.



Which statement is a valid conclusion based on the information in the graph?

- (A) Changes in temperature cause bacteria to adapt to form new species.
- (B) Bacteria can survive only at temperatures between 0°C and 100°C.
- (C) Individual species reproduce within a specific range of temperatures.
- (D) Increasing temperatures speed up bacteria reproduction.

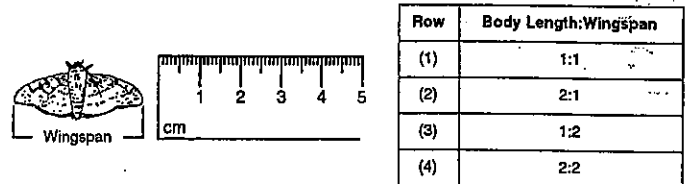
19. The bar graph below shows the height of a plant at the end of each week of a five-week growth period.



Which statement represents a valid conclusion based on the information in the graph?

- (A) The plant will grow faster during the sixth week than it did during the fifth week.
- (B) The plant grew fastest during the first three weeks, and then it grew slower.
- (C) The plant was given water during the first three weeks, only.
- (D) The plant grew slowest during the first three weeks, and then it grew faster.

20. A peppered moth and part of a metric ruler are represented in the diagram below.



Which row in the chart above best represents the ratio of body length to wingspan of the peppered moth?

- (A) 1
- (B) 2
- (C) 3
- (D) 4

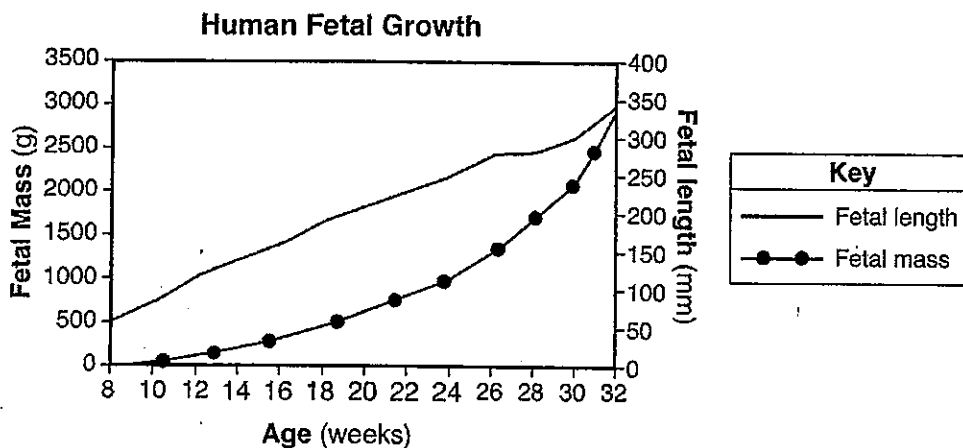
21. The table below shows an effect of secondhand smoke on the birth weight of babies born to husbands and wives living together during pregnancy.

Effect of Secondhand Smoke on Birth Weight

	Wife: Nonsmoker Husband: Nonsmoker	Wife: Nonsmoker Husband: Smoker
Number of Couples	837	529
Average Weight of Baby at Birth	3.2 kg	2.9 kg

Based on these data, a reasonable conclusion that can be drawn about secondhand smoke during pregnancy is that secondhand smoke

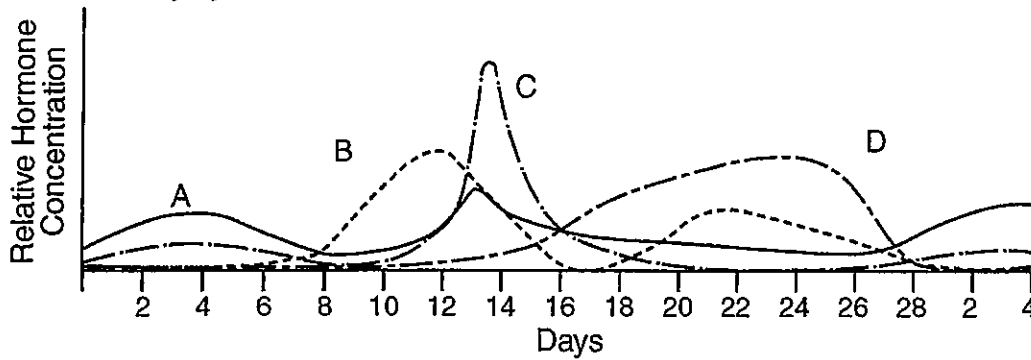
- (A) blocks the receptors on antibody cells
 - (B) is unable to pass from the mother to the fetus
 - (C) slows the growth of the fetus
 - (D) causes mutations in cells of the ovaries
22. The graph below represents the growth in length and mass of a fetus up to week 32. The length is measured in millimeters (mm) and the mass in grams (g).



Which statement best describes human fetal growth between weeks 26 and 32?

- (A) There is a faster rate of increase in mass than in length.
- (B) There are slight decreases in both length and mass.
- (C) The rate of increase in mass levels off, while the increase in length constantly increases.
- (D) The fetal mass increases by 750 g and the fetal length increases by about 100 mm.

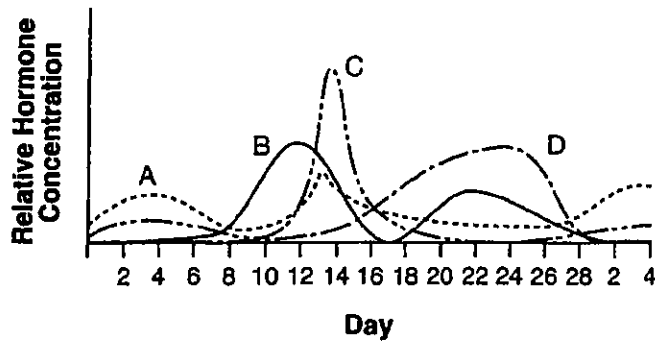
23. The graph below shows the different concentrations of female reproductive hormones *A*, *B*, *C*, and *D* over a 28-day cycle.



Although the data used to make this graph was originally entered in a data table, most scientists prefer to see the information in the form of a graph because

- (A) it is easier to see relationships between variables in a graph than in a data table
- (B) it is possible to put more information in a graph than in a data table
- (C) the information in a graph is more accurate than the information in a data table
- (D) only graphs can be used to predict future trends

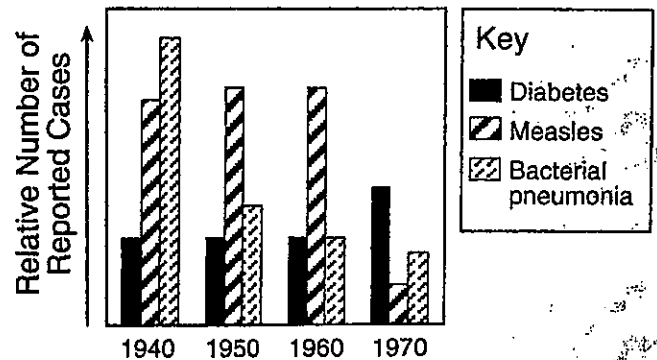
24. The graph below shows the relative concentrations of certain hormones in the blood during the human female reproductive cycle.



Which hormone has the lowest concentration on which day?

- (A) hormone *A* on day 4
- (B) hormone *B* on day 2
- (C) hormone *C* on day 12
- (D) hormone *D* on day 20

Incidence of Three Human Diseases in Four Different Years



25. The greatest difference between the incidence of measles and the incidence of bacterial pneumonia occurred in

- (A) 1970
- (B) 1950
- (C) 1960
- (D) 1940

26. Base your answer to the following question on the information and chart below and on your knowledge of biology.

It has been hypothesized that a chemical known as BW prevents colds. To test this hypothesis, 20,000 volunteers were divided into four groups. Each volunteer took a white pill every morning for one year. The contents of the pill taken by the members of each group are shown in the chart below.

Group	Number of Volunteers	Contents of Pill	% Developing Colds
1	5,000	5 grams of sugar	20
2	5,000	5 grams of sugar 1 gram of BW	19
3	5,000	5 grams of sugar 3 grams of BW	21
4	5,000	5 grams of sugar 9 grams of BW	15

Which group served as the control in this investigation?

- (A) 1 (B) 2 (C) 3 (D) 4

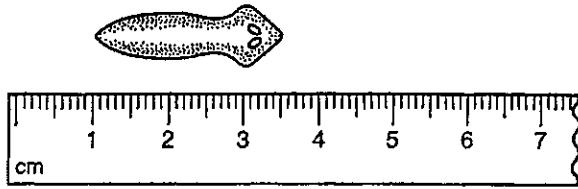
27. A diagram of the actual size of a peppered moth wingspan is shown below.



An estimated length of the wingspan could be

- (A) 3 grams (C) 3 milliliters
(B) 3 centimeters (D) 3 kilometers

28. The diagram below represents the measurement of a biological specimen.



What is the approximate length of the specimen in millimeters?

- (A) 25 mm (B) 30 mm (C) 35 mm (D) 40 mm

29. A laboratory procedure calls for heating 50 milliliters of a liquid sugar solution to 60°C . Which piece of laboratory equipment will *not* be needed?

- (A) ruler
(B) protective eyewear
(C) thermometer
(D) graduated cylinder

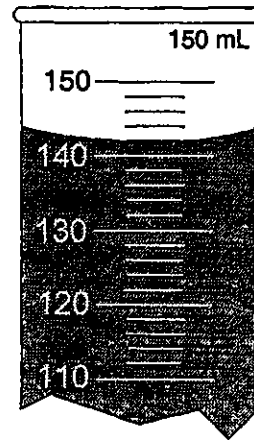
30. The diagram below represents a thermometer that is inside an incubator.



A student needs to incubate a bacterial culture at 43°C . According to the reading on the thermometer, how many degrees must the temperature in the incubator be increased to reach this temperature?

- (A) 9 (B) 6 (C) 3 (D) 12

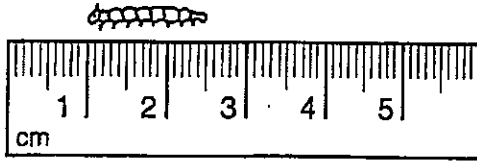
31. A chicken bone was placed in a graduated cylinder containing 100 milliliters of water. The diagram below illustrates the new level of water.



What is the volume of the chicken bone?

- (A) 142 mL (C) 41 mL
(B) 42 mL (D) 141 mL

32. A student, using a metric ruler, measured a larva as represented in the diagram below.



What is the length of the larva, in millimeters?

Base your answers to questions 33 through 37 on the information below and on your knowledge of biology.

Five groups of corn seeds, each containing 275 seeds, were soaked for 1 hour in different concentrations of gibberellic acid, a plant growth hormone. After 1 hour, the seeds were rinsed in tap water and drained of all excess water. The seeds were then placed on paper towels and kept moist for 7 days. After 7 days, the growing stems were cut and weighed to determine the increase in growth. Then, the percent increase in growth compared to the growth of a group of untreated seeds was calculated. The results were recorded and are shown in the data table below.

Growth Rate in Corn Plants Treated with Gibberellic Acid

Concentration of Gibberellic Acid in Parts per Million (ppm)	Increase in Growth *
225	15
300	30
400	23
500	15
600	6

* percent increase in growth compared to the growth of untreated seeds

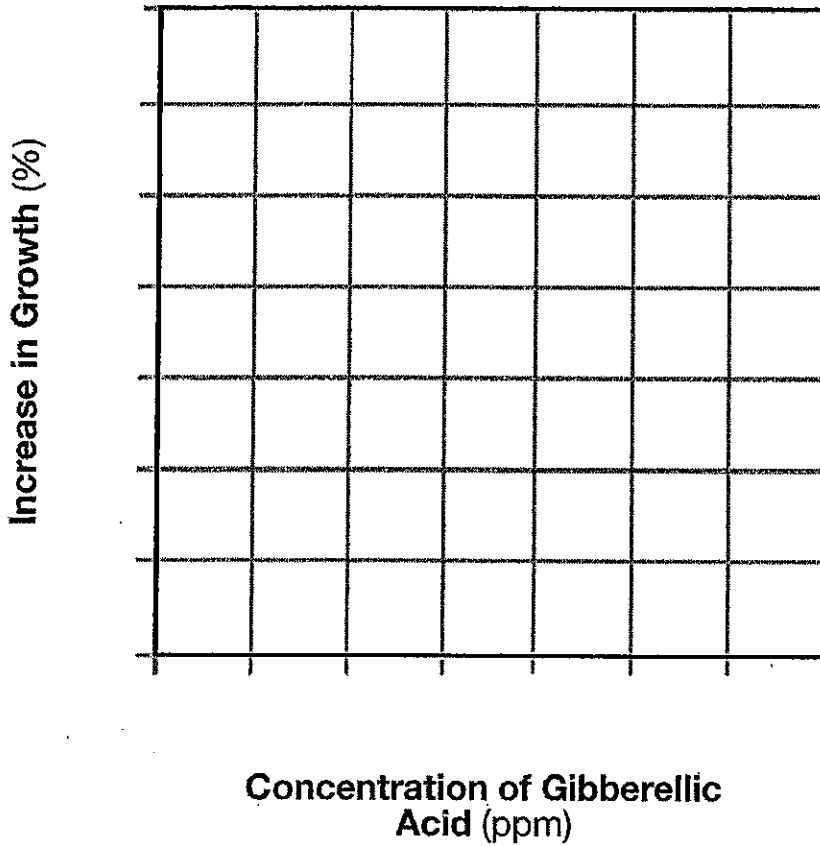
Source: Adapted from www.super-grow.biz/GibberellicAcid.jsp

33. Mark an appropriate scale, without any breaks, on each labeled axis on the grid on the next page.

34. Plot the data from the table on the grid. connect the points.

Surround each point with a small circle and

Growth Rate in Corn Plants Treated with Gibberellic Acid



35. Identify the control group in this experiment.

36. Which conclusion is supported by the data from this investigation?

- (A) Corn seedlings treated with gibberellic acid at concentrations between 225 and 600 ppm grow better than untreated seedlings.
- (B) A concentration of gibberellic acid under 300 ppm inhibits the growth of corn plants.
- (C) A concentration of gibberellic acid over 300 ppm makes corn seeds germinate best.
- (D) Plants from untreated corn seeds grow better than those treated with gibberellic acid at a concentration of 600 ppm.

37. State how farmers should use gibberellic acid to grow the largest plants. Support your answer with data from this experiment.

Base your answers to questions 38 through 40 on

the passage below and on your knowledge of biology. The letters indicate paragraphs.

Yellow Fever

Paragraph A

A team of doctors was sent to Havana, Cuba, to study a yellow fever epidemic. The doctors wanted to find out how the pathogenic microbe that causes yellow fever is transferred from those who are sick to those who are well. Some people thought that the disease was spread by having contact with a person who had the disease or even through contact with clothing or bedding that they had used.

Paragraph B

It was known that yellow fever occurred more frequently in swampy environments than in environments that were dry. Consequently, some people thought that the disease was due to contact with the atmosphere of the swamps. A respected doctor in Havana was convinced that a particular species of mosquito, *Aedes calopus*, spread the disease.

Paragraph C

The team of doctors carried out several experiments and collected data. They built poorly ventilated houses in which American soldiers volunteered to sleep on bedding used by individuals who had recently died of yellow fever in local hospitals. The soldiers also wore the night-shirts of those who had died. The houses were fumigated to kill all mosquitoes and the doors and windows of the houses were screened. None of the soldiers living in these houses contracted the disease, though the experiment was tried repeatedly.

Paragraph D

In another experiment, the team built houses that were tightly sealed. The doors and windows were screened. The insides of the houses were divided into two parts by mosquito netting. One part of the house contained a species of mosquito, *Aedes calopus*, that had been allowed to bite yellow fever patients in the hospital. There were no mosquitoes in the other part of the house. A group of volunteers lived in each part of the house. A number of those who lived in the part of the house with the mosquitoes became infected; none of those in the other part of the house did.

Paragraph E

Putting these facts together with other evidence, the team concluded that *Aedes calopus* spread the disease. The validity of this conclusion then had to be tested. All newly reported cases of yellow fever were promptly taken to well-screened hospitals and their houses were fumigated to kill any mosquitoes. The breeding places of the mosquitoes in and around Havana were drained or covered with a film of oil to kill mosquito larvae. Native fish species known to feed on mosquito larvae were introduced into streams and ponds. The number of yellow fever cases steadily declined until Havana was essentially free of the epidemic.

38. State the problem the team of doctors was trying to solve

39. State *one* hypothesis from paragraph *A* that was tested by one of the experiments.

40. Describe the control that should have been set up for the experiment described in paragraph *C*.

Base your answers to questions 41 through 45 on the information below and on your knowledge of biology.

Poison ivy is a weed that grows in New York State. It synthesizes an oil, urushiol, that causes skin rashes. Researchers have found that if poison ivy grows in an environment that contains an increased concentration of carbon dioxide, the plants grow larger, faster, and produce more urushiol. Because carbon dioxide levels in the atmosphere are rising, poison ivy might become a hazard to people who work or vacation outdoors.

41. State the hypothesis the experiment would test

42. State *one* way the control group should be treated differently from the experimental group

43. Identify *two* conditions that should be kept the same in both the control and the experimental groups

44. Describe the type of data to be collected

45. Identify *one* safety precaution that should be taken during the experiment and explain why it is necessary
