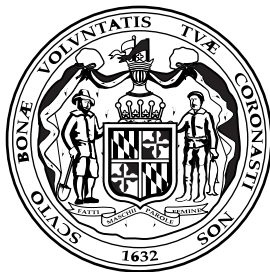


Mathematics

Goal 1: Functions and Algebra

Goal 3: Data Analysis and Probability



Maryland High School Assessment

Public Release, Fall 2000

CTB/McGraw-Hill



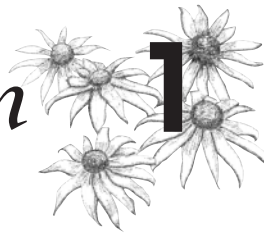
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Session

1



Response Grid Questions

Several questions in this test require you to enter your answer on a special grid like the one shown below.

/	/	/		
.
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

answer boxes
fraction bars
decimal points
number bubbles

Directions for Completing the Response Grids

1. Find the answer to the problem.
2. Write your answer in the boxes at the top of the grid.
 - Print your answer with the first digit (or symbol) in the left answer box, or with the last digit in the right answer box.
 - Print no more than one digit or symbol in each answer box. Do not leave a blank answer box in the middle of an answer.
 - Be sure to write a decimal point or fraction bar in the answer box if it is part of the answer.
3. Fill in the appropriate bubble under each box in which you wrote your answer.
 - Fill in only one bubble for each answer box used in your answer. Do not fill in a bubble under an unused answer box.
 - You must fill in the bubbles accurately to receive credit for your answer.



Examples of Valid Responses

The Response Grids below show valid ways to enter an answer of $\frac{3}{2}$.

		3	/	2	
	/	/	•		
•	•	•	•	•	•
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	•
3	3	•	3	3	
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

3	/	2			
•	•	/	/		
•	•	•	•	•	•
0	0	0	0	0	0
1	1	1	1	1	1
2	2	•	2	2	
•	3	3	3	3	
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

1	.	5			
/	/	/			
•	•	•	•	•	•
0	0	0	0	0	0
•	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	•	5	5	
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

1	.	5	0		
/	/	/			
•	•	•	•	•	•
0	0	0	0	•	
1	•	1	1	1	
2	2	2	2	2	
3	3	3	3	3	
4	4	4	4	4	
5	5	5	•	5	
6	6	6	6	6	
7	7	7	7	7	
8	8	8	8	8	
9	9	9	9	9	

Special Directions for Mixed Numbers, Decimals, and Negative Numbers

- Mixed numbers must be entered as decimals or improper fractions. For example, an answer of $1\frac{1}{2}$ should be entered as 1.5 or $\frac{3}{2}$.
- Decimal answers should be entered as accurately as possible unless otherwise indicated in the problem.
- No Response Grid questions have negative answers.



Directions

Use the Response Grid in the Answer Book to complete Sample A.

Sample A

Diana earned the scores below on her science tests.

79, 98, 85, 91

What is the mean of these scores?

Sample B

Look at the pattern below.

0, 2, 4, 6, 8, . . .

If the pattern continues, what will be the next term?

- A 2
- B 8
- C 10
- D 14

Sample C

The sum of the angles of a triangle is 180 degrees. The measures of two angles of a triangle are x and $3x$. Which of these expressions represents the measure of the third angle?

F $180 + x + 3x$

G $180 - x + 3x$

H $180 - x - 3x$

J $180 + x - 3x$



Notice that the answer choices for Sample C are FGHJ. Selected response answer choices will alternate ABCD and FGHJ.

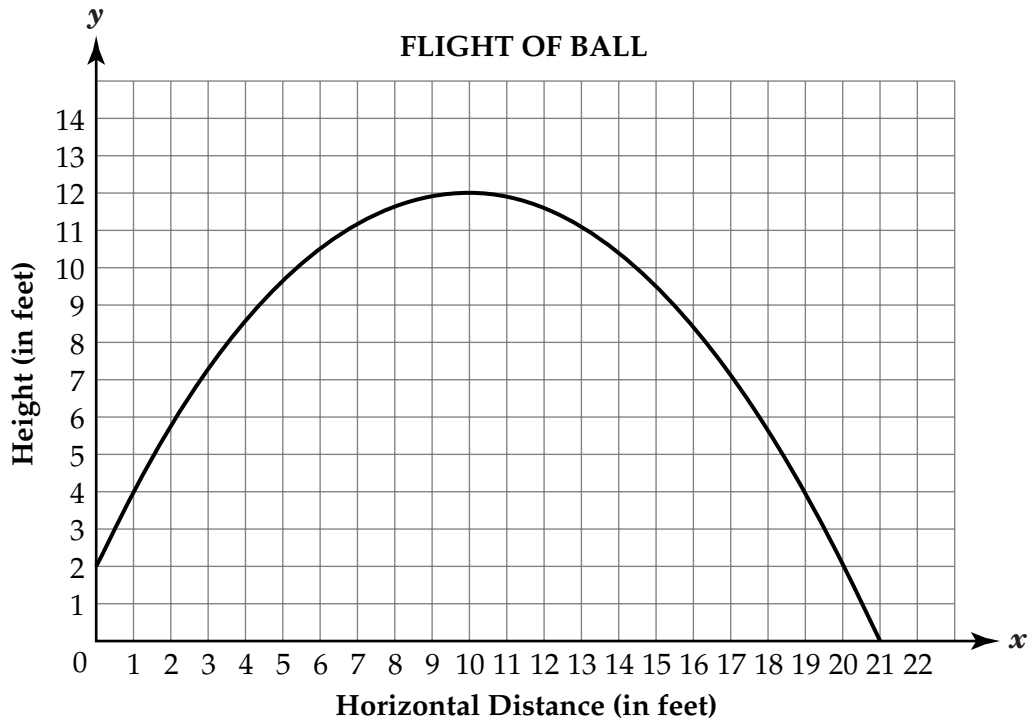
In addition to Response Grid questions such as Sample A and selected response questions such as Sample B and Sample C, there will be constructed response questions that require a written answer. Brief Constructed Response items, which require a short written answer, are labeled “BCR” below the question number in the Student Test Book. Extended Constructed Response questions, which require a longer written answer, are labeled “ECR” below the question number in the Student Test Book. The Rubric Sheet provides information about how constructed response questions will be scored. You may refer to the Rubric Sheet during the test. You will also be provided with “Cues for Students,” which further clarifies how to respond to the constructed response questions. For students taking the geometry assessment, the difference between a construction and drawing is clarified under “Representation” on the “Cues for Students” sheet.

Remember, read all directions and questions very carefully and choose the best answer for each question. If you are not sure about an answer, do the best you can, but don’t spend too much time on any one question.

Answer all questions until you come to the end of Session 1, where you will see a stop sign. If you finish early, you may check your answers in Session 1, but do not go on to Session 2. You have 60 minutes to complete Session 1.



1 Bob threw a ball across a basketball court. The graph below shows the relationship between the horizontal distance of the ball and its height.



How many feet from Bob did the ball land?

- A 10
- B 12
- C 18
- D 21



2 The United States Congress is composed of the Senate and the House of Representatives. The matrices below show the number of members in Congress from 1983 through 1989.

	SENATE					HOUSE OF REPRESENTATIVES			
	1983	1985	1987	1989		1983	1985	1987	1989
Democrats	54	53	55	55	Democrats	269	252	258	259
Republicans	46	47	45	45	Republicans	165	182	177	174
Independents	0	0	0	0	Independents	0	0	0	0

What was the total number of Democrats in Congress in 1985?

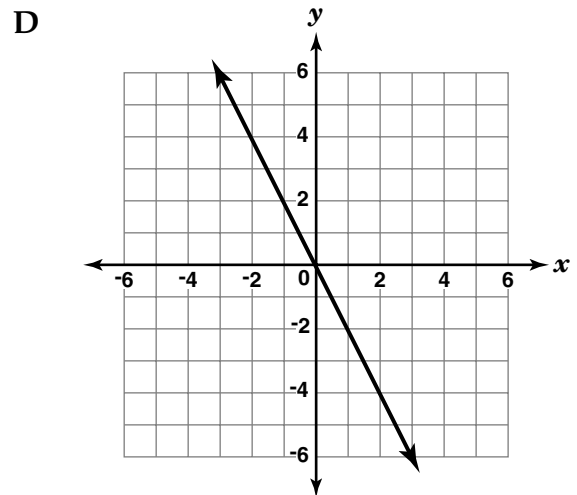
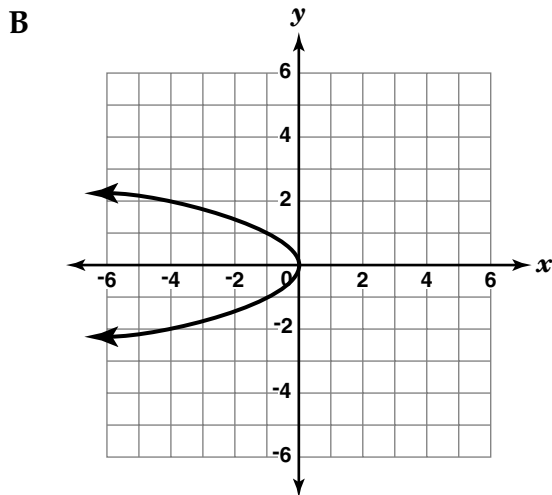
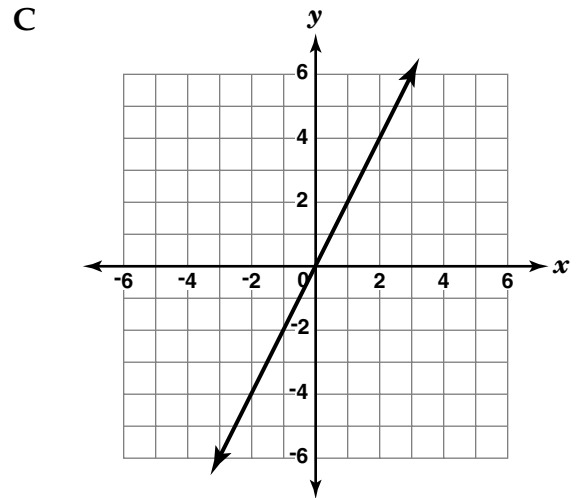
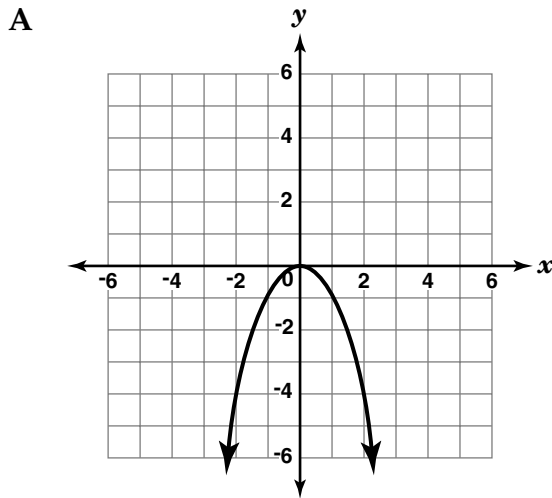
- F 229
- G 235
- H 305
- J 534



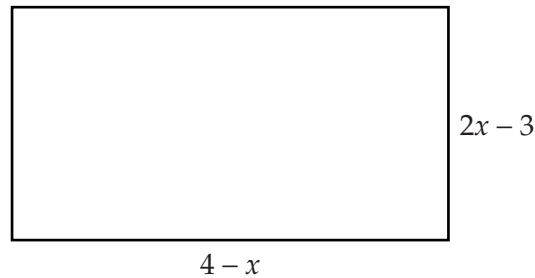
3 The table below shows a relationship between x and y .

x	-2	-1	0	1	2
y	-4	-1	0	-1	-4

Which of these graphs represents this relationship?



- 4** Look at the rectangle below.



Which of these expressions represents the perimeter of the rectangle?

- F $2x - 3(4 - x)$
G $(2x - 3)(4 - x)$
H $(2x - 3) + (4 - x)$
J $2(2x - 3) + 2(4 - x)$

- 5** A video store charges a one-time membership fee of \$12.00 plus \$1.50 per video rental. Which of these equations represents the amount (A) a customer spends, in dollars, for v videos?

- A $A = 1.5v - 12$
B $A = 1.5v + 12$
C $A = 12v + 1.50$
D $A = 12v - 1.50$

Directions

Use the Response Grids in the Answer Book to complete Numbers 6 through 9.

- 6** The formula below can be used to find the amount of money (A) in a savings account, where P is the initial deposit, r is the interest rate, and t is the time in years.

$$A = P + Prt$$

Jonathan deposits \$400 into a new savings account with an interest rate of 3%. He makes no other deposits or withdrawals. How much money, in dollars, will Jonathan have in the account after 1 year?

- 7** In a restaurant, two groups placed the orders shown in the table below.

ORDERS TAKEN

	Number of Small Lunch Plates	Number of Large Lunch Plates	Total Price
Group A Order	4	1	\$22.50
Group B Order	2	3	\$27.50

Based on this information, what is the price, in dollars, of a large lunch plate?



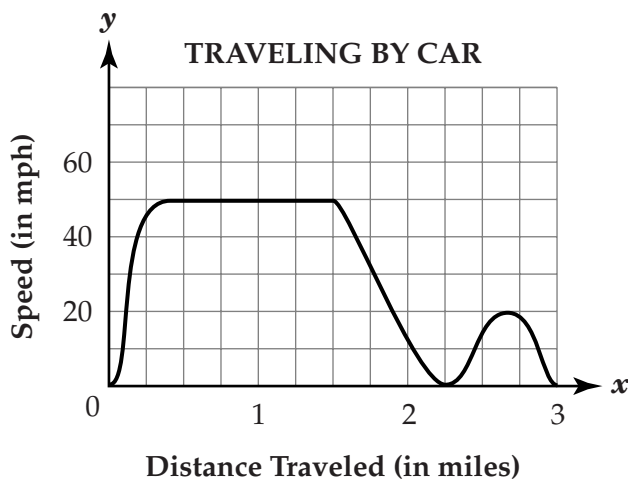
8 Laura buys 10 bags of candy and records the number of orange candies in each. Each bag contains 25 pieces of candy.

CANDY SAMPLE DATA

Bag	Number of Orange Candies
1	11
2	10
3	8
4	9
5	12
6	10
7	13
8	9
9	12
10	7

Based on this sample data, what is the probability that a randomly selected piece of candy from one of these bags is orange?

9 James is driving to the store. The relationship between the distance traveled and the speed of his car is shown on the graph below.



How many miles did James drive before his car came to the first complete stop?



10 A company has 70 employees. The frequency table below shows their salaries.

BCR

EMPLOYEE SALARIES

Salary	Frequency
\$16,500	36
\$22,300	13
\$30,100	8
\$34,800	6
\$42,500	4
\$51,100	2
\$130,300	1

Complete the following in the Answer Book:

- Use the frequency table to find the mean and median salaries.
- As an employee, would you use the mean or median to ask for raises for the employees with lower salaries? Use mathematics to justify your answer.

- 11** During a thunderstorm, the time between seeing lightning and hearing thunder is related to the distance from the lightning as shown in the table below.

ECR

DISTANCE FROM STORM

Time Between Seeing Lightning and Hearing Thunder (in seconds)	1	2	3	4	5
Distance from Lightning (in feet)	1,100	2,200	3,300	4,400	5,500

Complete the following in the Answer Book:

- Graph the data from the table on the grid provided in the Answer Book.
- Write an equation that models this relationship between time and distance. Use mathematics to explain how you determined your equation. Use words, symbols, or both in your explanation.
- How far away is the lightning when the time between seeing lightning and hearing thunder is 16 seconds? Use mathematics to explain how you determined this distance. Use words, symbols, or both in your explanation.

- 12** A ball is tossed upward with an initial velocity of 42.5 feet per second. The equation below shows the velocity (v) of the ball after t seconds.

$$v = -32t + 42.5$$

After how many seconds is the velocity 0 feet per second? Round the answer to the nearest tenth of a second.

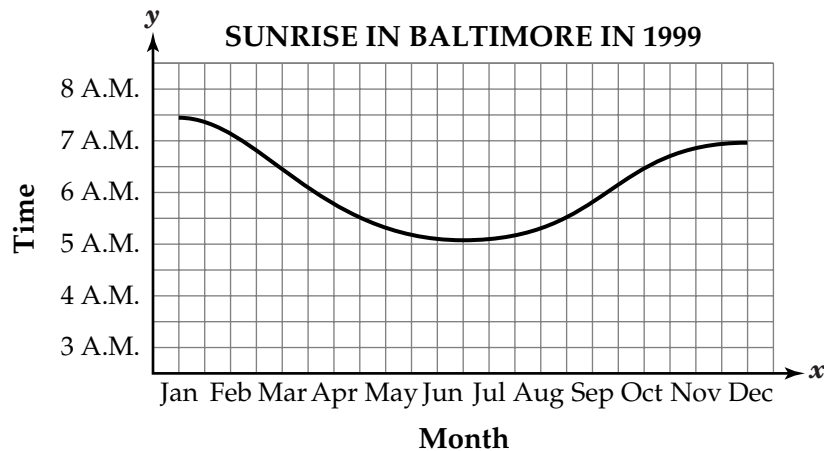
- F 0.8 seconds
 G 1.3 seconds
 H 10.5 seconds
 J 42.5 seconds



- 13** Eva bought 5 pairs of identical socks and a \$6.50 hairbrush. The total cost for the items was less than \$29. Which of these inequalities best describes the cost (c) of each pair of socks?

- A $c < \$4.50$
 B $c > \$4.50$
 C $c < \$7.10$
 D $c > \$7.10$

- 14** The graph below shows the time of sunrise in Baltimore from January 1 to December 1, 1999.



During which of these months did the sun rise at the latest time of day?

- F January
 G June
 H October
 J December

- 15** For quality control, a light bulb company conducted a random sampling of their light bulbs. The results are shown below.

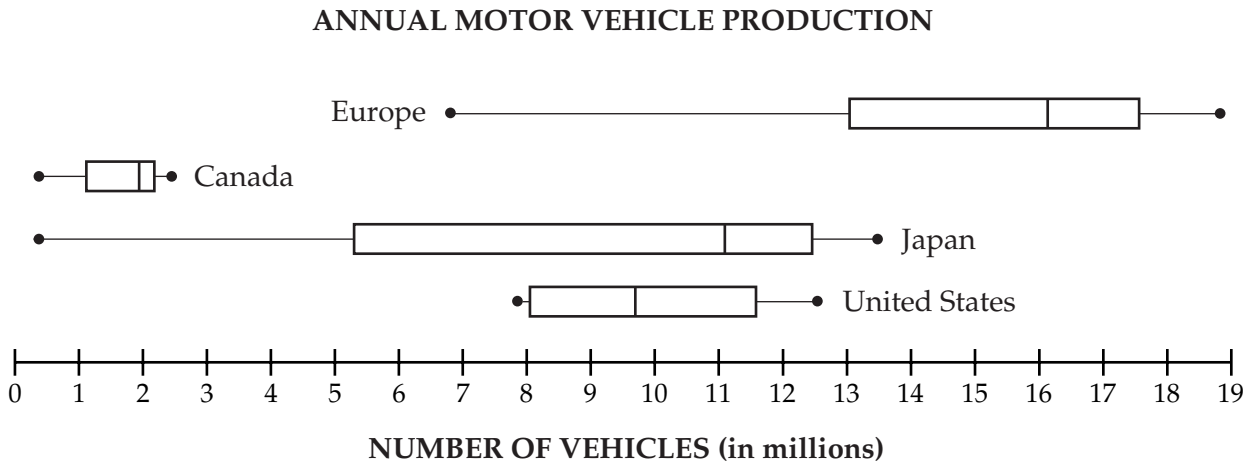
SAMPLE RESULTS

Number of Defective Bulbs	Number of Nondefective Bulbs
4	96

The light bulb company makes 6,000 light bulbs in a day. Based on this sample, how many defective light bulbs can the company expect to make in a day?

- A 240
- B 250
- C 1,500
- D 2,400

- 16** The box-and-whisker plots below show the numbers of motor vehicles produced in four different regions for selected years since 1950.



According to the box-and-whisker plots, which of these geographical regions could have a mean annual vehicle production that is greater than their median annual vehicle production?

- F Japan
- G Europe
- H Canada
- J United States

- 17** An algebra class conducted an experiment in which they determined the mass of pennies in a container. The table below shows the results.

BCR

Number of Pennies	Mass of Pennies and the Container (in grams)
8	35.1
16	56.2
24	74.8
32	92.9
40	114.9
48	135.9

Complete the following in the Answer Book:

- Write the equation for a line of best fit. Use mathematics to explain how you determined your line of best fit. Use words, symbols, or both in your explanation. (If you solve the problem graphically, use the grid provided in the Answer Book to add to your written response.)
- Explain what the slope and y -intercept of your equation represent in this context.

- 18** Two bicycle shops build custom-made bicycles. Bicycle City charges \$160 plus \$80 for each day that it takes to build the bicycle. Bike Town charges \$120 for each day that it takes to build the bicycle.

ECR

Complete the following in the Answer Book:

- Write an equation for each store that describes the charge (C) to build a custom-made bicycle in x days.
- For what number of days will the charge be the same at each store? What will be the charge for that number of days? Use mathematics to justify your answer. (If you solve the problem graphically, use the grid provided in the Answer Book to add to your written response.)
- When is it less expensive to use Bicycle City to build a custom-made bicycle than Bike Town? When is it more expensive? Use mathematics to justify your answer.



- 19** The table below shows the population of a group of mice over a period of time.

POPULATION OF MICE

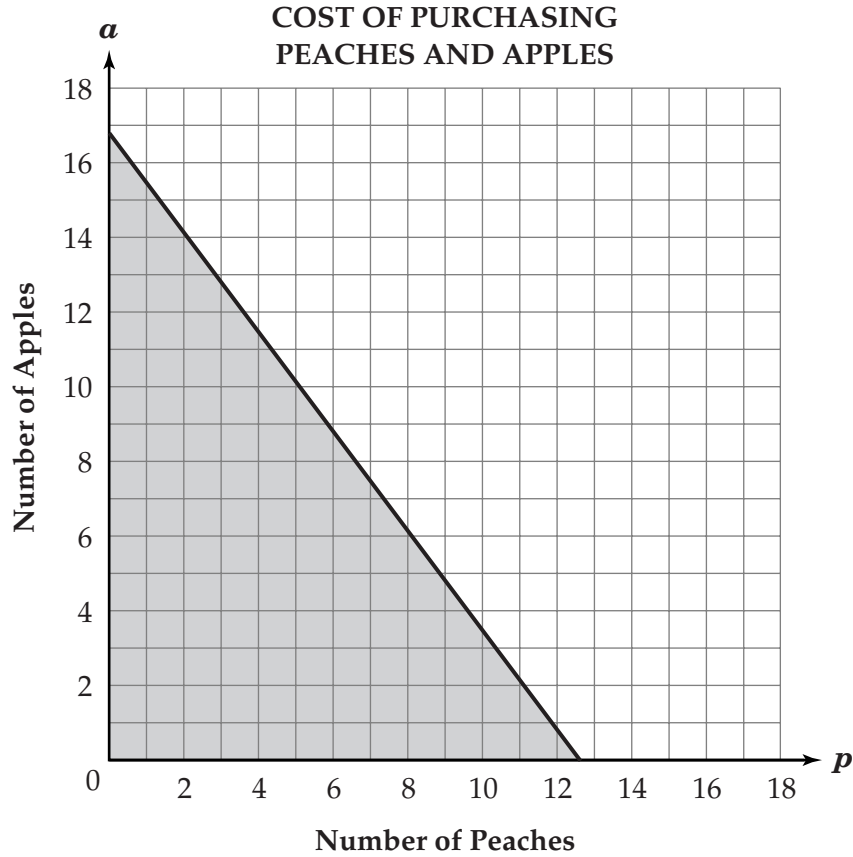
Month	0	1	2	3	4
Population	4	8	16	32	64

If this pattern continues, what will be the population of mice in Month 12 ?

- A 192
- B 4,096
- C 8,192
- D 16,384



- 20** Tori can spend up to \$5.00 at the fruit stand. She wants to buy peaches (p) that are \$0.40 each and apples (a) that are \$0.30 each. The graph below shows the possible numbers of peaches and apples Tori can purchase.



Which of these is a combination of peaches and apples Tori can buy with \$5.00?

- F 2 peaches and 15 apples
- G 4 peaches and 10 apples
- H 10 peaches and 4 apples
- J 12 peaches and 2 apples



21 In a class of 16 students, each student has a different test score. The median test score is 84. What is the greatest number of students who scored higher than 84?

A 6

B 7

C 8

D 9

22 At the end of a banquet, 135 students enter a prize drawing by placing their name tags in a box. After six name tags have been selected and removed from the box, Ryan has not yet won a prize. What is the probability that Ryan will win the next prize?

F $\frac{1}{54}$

G $\frac{1}{57}$

H $\frac{1}{129}$

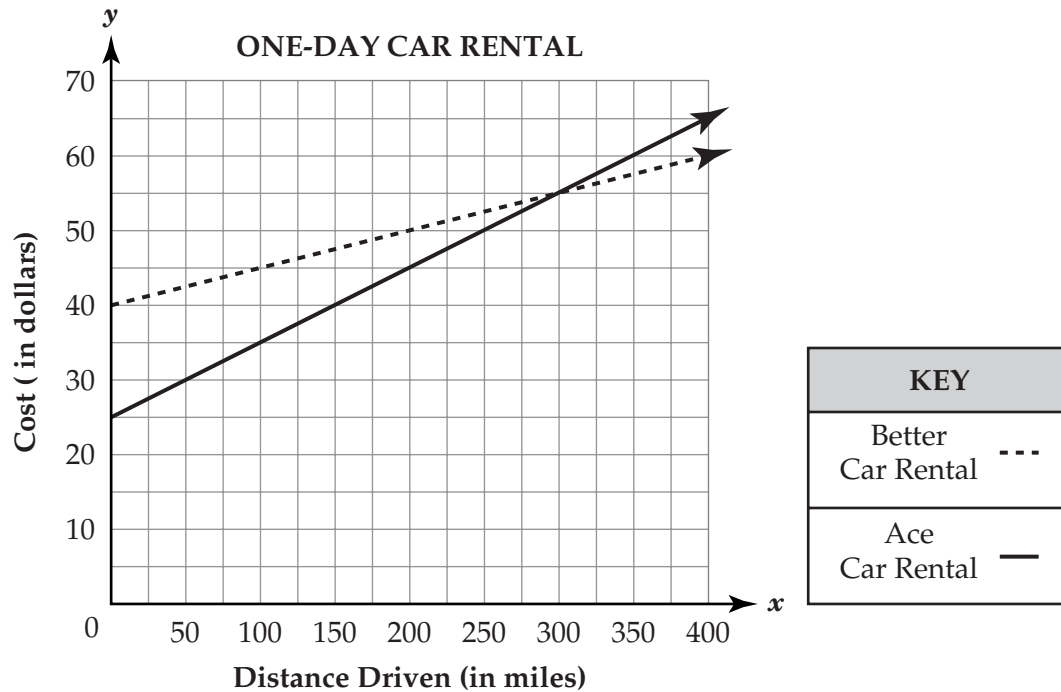
J $\frac{1}{135}$



Session **2**

Answer all questions until you come to the end of Session 2, where you will see a stop sign. If you finish early, you may check your answers in Session 2, but do not go back to Session 1. You have 60 minutes to complete Session 2.

- 23** Ace Car Rentals advertises that a rental car costs \$25 per day plus a charge of \$0.10 per mile. For the same car, Better Car Rental advertises a price of \$40 per day plus \$0.05 per mile. The graph below models the costs of a one-day rental from the two car rental companies.



For what number of miles is the cost of renting a car the same at both companies?

- A 50 miles
- B 55 miles
- C 300 miles
- D 325 miles



- 24** A local baseball league separates its season into two parts. The win/loss records for each team are shown in the two matrices below.

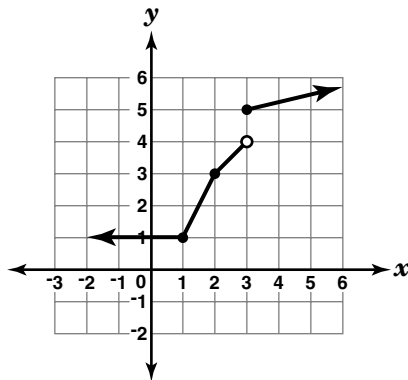
	First Part of Season			Second Part of Season	
	Wins	Losses		Wins	Losses
Giants	2	8	Giants	9	3
Ducks	7	3	Ducks	8	4
Torpedos	6	4	Torpedos	5	7
Bears	5	5	Bears	2	10

Which team had the most wins and which team had the most losses during the entire season?

- F** The Bears had the most wins, and the Ducks had the most losses.
- G** The Ducks had the most wins, and the Bears had the most losses.
- H** The Giants had the most wins, and the Bears had the most losses.
- J** The Ducks had the most wins, and the Giants had the most losses.



- 25** Look at the function that is graphed below.



Which of these statements about the function is true?

- A It is continuous.
- B It is not continuous at $x = 1$.
- C It is not continuous at $x = 2$.
- D It is not continuous at $x = 3$.

- 26** The Student Government Association is planning a dance. The Association spends \$450 for supplies and will charge \$7 per ticket. The expression for profit (total sales minus total costs) is $7x - 450$, where x is the number of tickets that are sold. Which of these expressions represents the profit per ticket?

F $7x^2 - 450$

G $x(7x - 450)$

H $\frac{x}{7x - 450}, x \neq \frac{450}{7}$

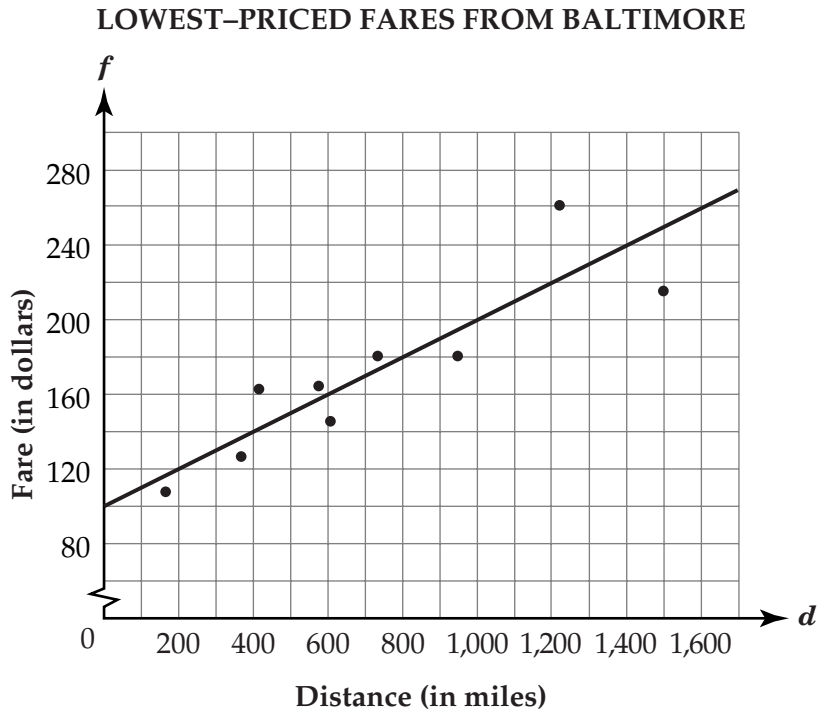
J $\frac{7x - 450}{x}, x \neq 0$

- 27** A computer company had a warehouse sale. The sales manager found that the mode of the sale prices of computers was \$1,200. What does this price represent?

- A Half of the computers sold for \$1,200.
- B The most common sale price was \$1,200.
- C Half of the computers sold for more than \$1,200.
- D The difference between the highest and lowest sale price was \$1,200.



- 28** The scatter plot below shows the lowest-priced fares for flights from Baltimore to various destinations. A line of best fit has been graphed.



The equation for this line of best fit is shown below, where d is the distance in miles and f is the fare in dollars.

$$f = 0.1d + 100$$

Which of these is a correct interpretation of the slope of this line?


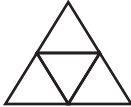
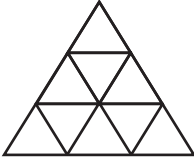
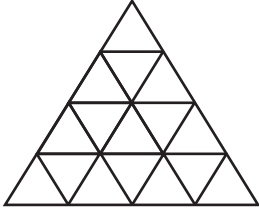
- F The fare increases \$100 for every additional 0.1 mile.
- G The fare increases \$10 for every additional mile.
- H The fare increases \$0.10 for every additional 100 miles.
- J The fare increases \$0.10 for every additional mile.

Directions

Use the Response Grids in the Answer Book to complete Numbers 29 through 31.

29 Keisha charges \$5.50 per hour for yard work. She also charges a \$2.00 fee for supplies for each job. How many hours will she need to work at one job in order to be paid \$35.00 ?

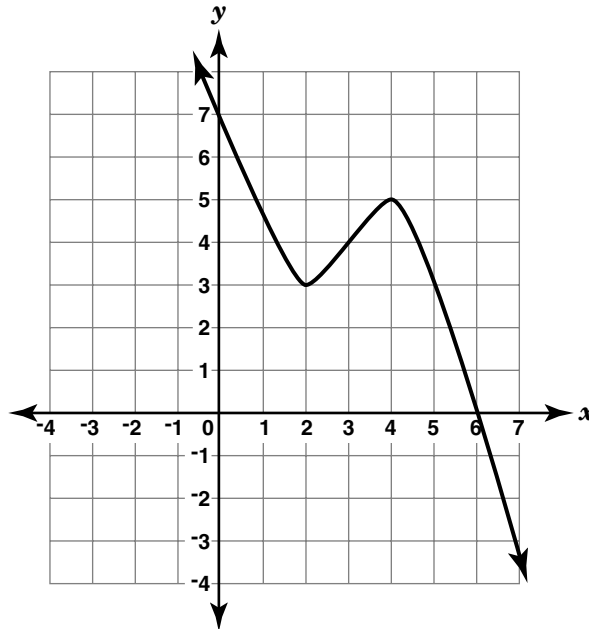
30 Look at the pattern of small triangles in the table below.

Stage Number	1	2	3	4
Small Triangle Pattern				
Number of Small Triangles	1	4	9	16

If the pattern continues, how many small triangles will be in the design at Stage 25?



- 31** Look at the function that is graphed below.



What is the zero of this function?

- 32** The income (y) for selling x tubes of toothpaste is modeled by the equation $y = 2.5x$ dollars. The production cost (y) for x tubes of toothpaste is modeled by the equation $y = 0.9x + 3000$ dollars.

BCR

Complete the following in the Answer Book:

- How many tubes of toothpaste must be sold for the income to equal the production cost? Use mathematics to justify your answer. (If you solve the problem graphically, use the grid provided in the Answer Book to add to your written response.) (Suggested graphing window: $0 \leq x \leq 3000$, $0 \leq y \leq 6000$.)
- What is the income and production cost at the point when they are equal?
- The company makes a profit when their income is greater than their production cost. What is the least number of toothpaste tubes the company can sell to make a profit? Use mathematics to justify your answer.

33

ECR

At an amusement park, each visitor receives one of four different toy animals. A visitor has an equal chance of receiving any given toy animal. Evan simulated the number of visits it would take to receive all four animals. He assigned one of the digits 1, 2, 3, or 4 to represent each toy animal.

Evan generated random numbers until each of the different digits appeared. He repeated this 30 times and recorded his results below. The number of digits in each entry represents the number of visits needed to receive at least one of each toy animal.

3421	243334321	3412	224413	23124
4422113	1224143	24121423	144113432	141211423
1243	33434321	3412	22442213	344243224423221
4231	1313442	12324	31221114	223431
13234	4331142	32421	1432	2114114223
1441214113	31113342	1231313214	2332124	13232323114

Complete the following in the Answer Book:

- Complete the frequency table in the Answer Book to summarize the results of the simulation.
- Based on this simulation, use measures of central tendency to predict the number of visits it would take to receive all four toy animals. Use mathematics to justify your answer.
- Evan concluded from this simulation that a visitor is guaranteed to receive all four toy animals in 15 visits or less. What is wrong with his conclusion? Use mathematics to justify your answer.



- 34** Jay surveyed 20 randomly chosen students in the cafeteria and asked them to select their favorite lunch food. His results are shown in the table below.

FAVORITE FOOD SURVEY

Food	Number of Students
Pizza	7
Tacos	5
Spaghetti	2
Chicken nuggets	2
Cheeseburger	4

There are 1,250 students at Jay's school. Based on the survey results, how many students in the school should Jay expect to select cheeseburgers as their favorite food?

- F 50
- G 80
- H 250
- J 400

- 35** Look at the pattern below.

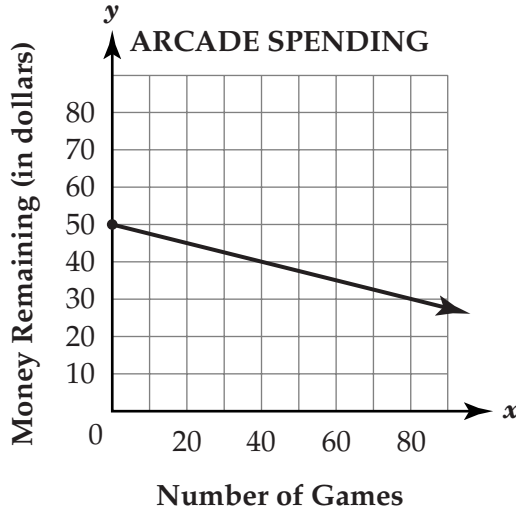
$-1, 0, 3, 8, 15, \dots$

If the pattern continues, what will be the next term?

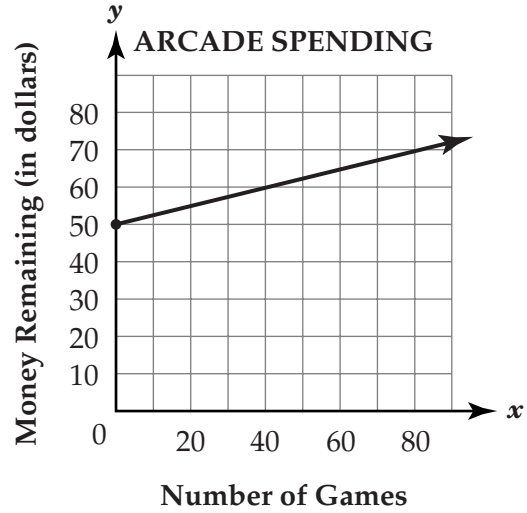
- A 20
- B 22
- C 24
- D 35

36 Monica has \$50 to spend at the video arcade. If each game costs \$0.25, which of these graphs shows how much money she will have after x games?

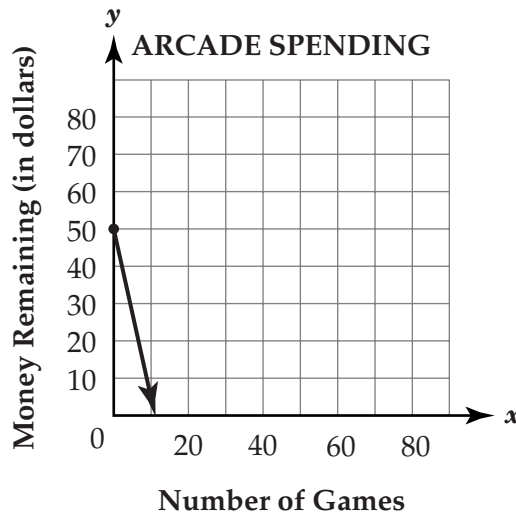
F



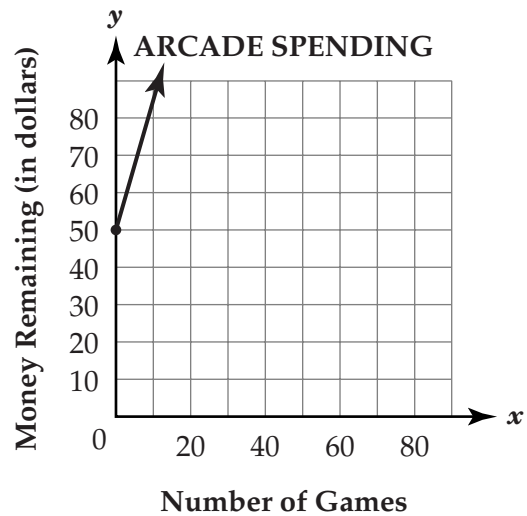
H



G



J



- 37** Teri wants to buy as many pencils and pens as possible. She wants three pencils for every pen. Each pencil costs \$0.15 and each pen costs \$0.20. She cannot spend more than \$6.50.

What is the maximum number of pens she can purchase?

- A 10
- B 11
- C 30
- D 33

- 38** The formula used to convert temperature measurements from degrees Fahrenheit (F) to degrees Celsius (C) is shown below.

$$C = \frac{5}{9}(F - 32)$$

What is the Celsius equivalent of 90 degrees Fahrenheit? Round the answer to the nearest degree.

- F 18°
- G 32°
- H 68°
- J 130°

- 39** The table below shows the number of dogs in the United States that can perform certain tricks.

DOG TRICKS

Trick	Number (in millions)
Sit	5.3
Shake paw	3.8
Roll over	2.9
Stand on hind legs	1.9
Sing	0.8
Fetch newspaper	0.4

Steve adds the values in the table for dogs that can stand on hind legs and dogs that can sing. He concludes that there are 2.7 million dogs in the United States that can stand on their hind legs or sing. Why is this statement a misuse of data?

- A Steve did not consider some dogs do no tricks.
- B Steve did not consider some dogs do only one trick.
- C Steve did not consider all the dogs in the United States.
- D Steve did not consider that some dogs can do both tricks.

- 40** The stem-and-leaf plot below shows the number of games won for each of the 30 major league baseball teams in 1998.

NUMBER OF GAMES WON
FOR EACH BASEBALL TEAM IN 1998

Stem	Leaf
11	4
10	2 6
9	0 2 8
8	0 3 3 5 8 8 8 9 9
7	0 2 4 4 5 6 7 7 9
6	3 5 5 5 9
5	4

KEY
5 4 = 54

One team is chosen at random. What is the probability that the selected team won more than 81 games?

- F $\frac{10}{30}$
- G $\frac{13}{30}$
- H $\frac{14}{30}$
- J $\frac{15}{30}$



41**BCR**

A doctor wants to conduct a survey using a random sample of her 1,500 patients. Below are three methods she is considering.

Method 1: pick every fourth patient that enters the doctor's waiting room on a randomly selected day

Method 2: number the doctor's patients from 1 to 1,500 and then generate random numbers (ignoring repeats) to select 30 patients

Method 3: select every 20th patient's folder from the filing cabinet drawers until 30 patient names are chosen

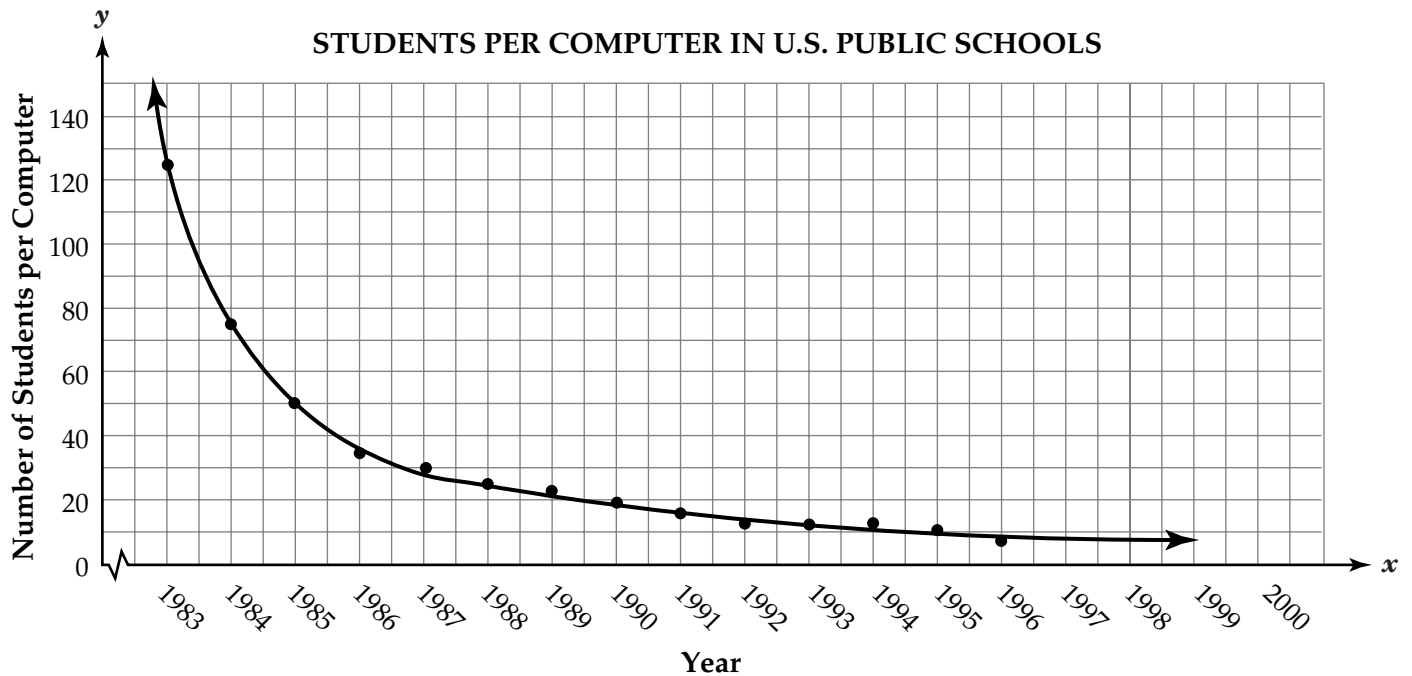
Complete the following in the Answer Book:

- Which method should the doctor choose? Use principles of simple random sampling to justify your answer.
- Use principles of simple random sampling to justify why she should not choose the other two methods.



- 42** The scatter plot below shows the number of students per computer, in U.S. public schools, for the years 1983 through 1996. A curve of best fit is graphed.

BCR



Complete the following in the Answer Book:

- In what year were there approximately 30 students per computer?
- According to the curve of best fit, what is the number of students per computer in the year 2000 ?
- Assume that the number of students remained about the same each year. What does the overall shape of the graph suggest about the number of computers from 1983 through 1999 ? Use mathematics to justify your answer.

- 43** The table below shows the money Cory earns based on the number of sets of silverware Cory sells.

CORY'S EARNINGS

Number of Sets of Silverware Sold	Money Earned
2	\$52
4	\$82
6	\$112
8	\$142

Which of these equations represents the relationship between the number of silverware sets sold (x) and the amount of money earned (y)?

- A $y = 4x + 48$
B $y = 4x + 82$
C $y = 15x + 78$
D $y = 15x + 22$

- 44** Leslie makes extra money by baby-sitting. Depending on the job, Leslie charges parents according to one of the two plans shown below.

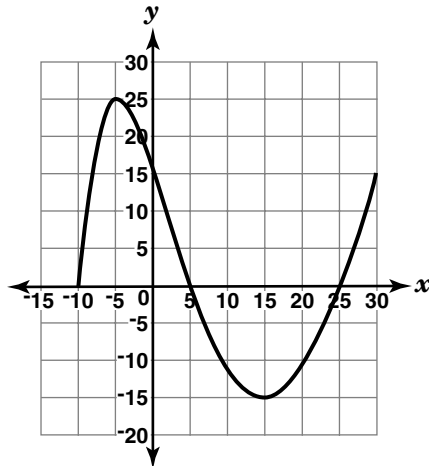
Plan 1: A flat rate of \$5.00 per hour

Plan 2: An initial fee of \$10.00, plus \$2.50 per hour

For what number of hours are the charges from the two plans equal?

- F 2
G 4
H 10
J 20

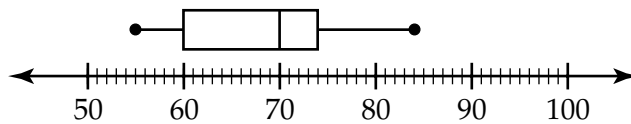
45 Look at the function that is graphed below.



What are the maximum and minimum values of this function?

- A maximum 15, minimum -5
- B maximum 25, minimum -15
- C maximum 25, minimum -10
- D maximum 30, minimum -10

46 The box-and-whisker plot below summarizes student scores on a physical fitness test.



Students receive an award for scores at or above the upper quartile. What is the lowest score a student can get to receive an award?

- F 60
- G 70
- H 74
- J 84

- 47** The table below shows the mean number of attempted baskets per game and the mean number of successful baskets per game for the top five players on a girls' basketball team.

GIRLS' BASKETBALL STATISTICS FOR ONE SEASON

Player	Mean Number of Attempted Baskets (per game)	Mean Number of Successful Baskets (per game)
Emily	9	5
Katrice	5	2
Michelle	8	4
Paula	7	3
Rachel	3	1

What is the probability that Michelle is successful when she attempts to make a basket?

- A 0.25
- B 0.27
- C 0.33
- D 0.50

- 48** The table below shows how a typical household spends money on utilities.

UTILITIES IN A TYPICAL HOUSEHOLD

Utility	Percent of Total Utility Costs
Lighting	6
Refrigeration	9
Water heating	14
Appliances	27
Heating and cooling	44

A typical household spent \$1,400 on utilities last year. If there are no significant changes in their utility usage for this year, how much should they budget for heating and cooling their home this year?

- F \$196
- G \$378
- H \$616
- J \$784



49 Gil is studying the perimeters of the figures in the tile pattern below.

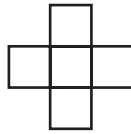


Figure 1

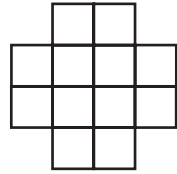


Figure 2

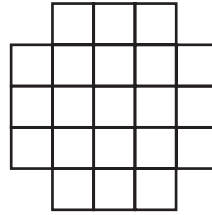


Figure 3

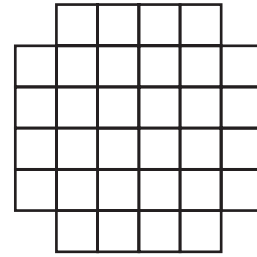


Figure 4

TILE PATTERN

Figure	1	2	3	4
Perimeter	12	16	20	24

Which of these equations represents the perimeter (P) of figure (n)?

- A $P = 4n + 8$
- B $P = 4n + 4$
- C $P = n^2 + 2n$
- D $P = n^2 + 4n$

