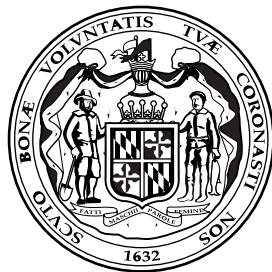


Mathematics

Goal 1: Functions and Algebra

Goal 3: Data Analysis and Probability



Maryland High School Assessment

Public Release, Fall 2001

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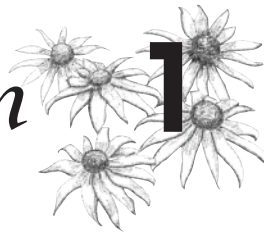


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Session

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	
1	1	1	1	1	
2	2	2	2	•	
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	

3	/	2			
•	/	/			
•	•	•	•	•	
0	0	0	0	0	
1	1	1	1	1	
2	2	•	2	2	
•	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	

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	

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 55 minutes to complete Session 1.



- 1** The table below shows Joe's weekly pay based on the number of pairs of shoes he sells.

JOE'S WEEKLY SHOE SALES

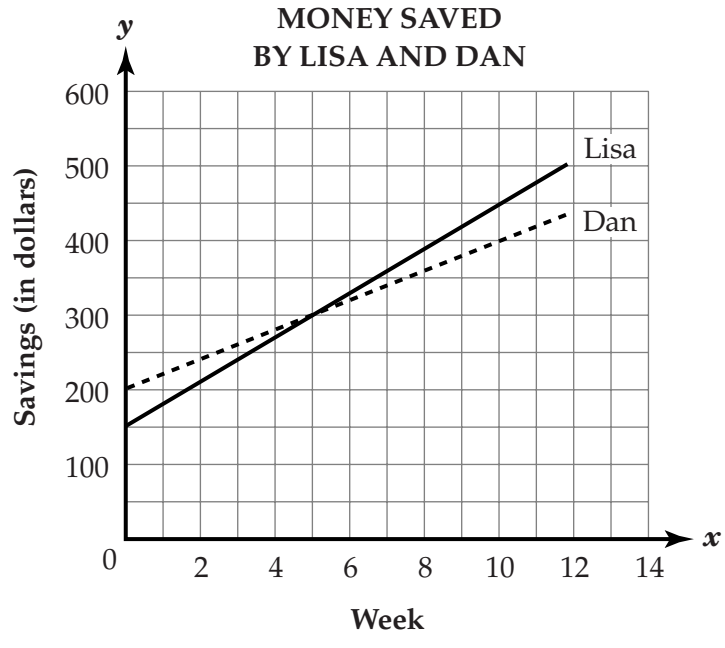
Numbers of Pairs Sold	Weekly Pay (in dollars)
10	560
20	620
30	680

If he sells 50 pairs of shoes a week, what is Joe's weekly pay?

- A** \$740
- B** \$800
- C** \$1,300
- D** \$2,800
- 2** Margaret is recording songs from CDs onto a cassette tape. She has already recorded 21 minutes onto her 60-minute tape. How many complete 5-minute songs will fit on the unrecorded part of the tape?
- F** 4
- G** 7
- H** 8
- J** 16



3 The graph below shows the amounts of money that Lisa and Dan saved during the summer.

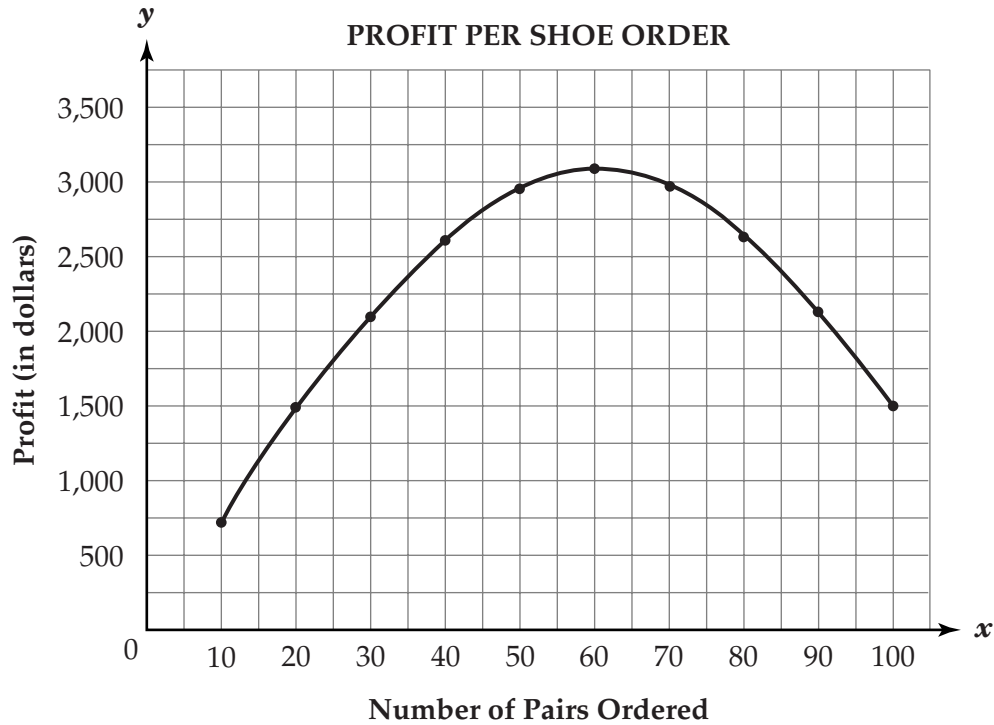


How much money did they each have when their savings were equal?

- A \$200
- B \$300
- C \$500
- D \$600



- 4 The profit that a shoe manufacturer makes is related to the number of pairs of shoes ordered, as shown in the graph below.



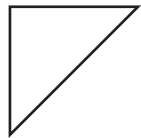
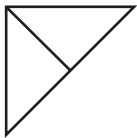
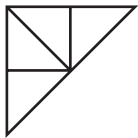
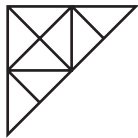
How many pairs of shoes must be ordered for the manufacturer to make the greatest profit?

- F 60
- G 100
- H 1,600
- J 3,100

Directions

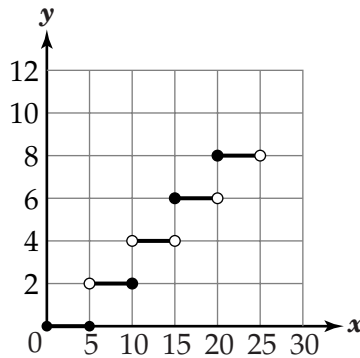
Use the Response Grids in the Answer Book to complete Numbers 5 through 8.

5 Look at the pattern in the table below.

Figure				
Number of Sections	1	2	4	8

If the pattern continues, how many sections will be in the next figure?

6 Look at the graph below.



What is the y value when x is 15?

- 7** Debi and some students from her geometry class went outside to measure their shadows. Debi measured Sean's and Karyn's shadows and recorded the information in the table below.

SHADOW MEASUREMENTS

Name	Height (x)	Shadow Length (y)
Sean	159 cm	106 cm
Karyn	167 cm	112 cm

Debi plotted this data on a coordinate grid. What is the slope of the line containing these two points?

- 8** The formula below can be used to find the distance (d) traveled by an object, where v represents the initial velocity of the object, t represents the time, in seconds, and a represents the acceleration, in meters per second squared.

$$d = vt + \frac{1}{2}at^2$$

A bicycle traveling at a velocity of 4.5 meters per second accelerates down a hill at a constant rate of 0.4 meters per second squared for 12 seconds. What is the distance, in meters, that the bicycle travels?

- 9** A telephone company offers customers two payment plans for monthly service.

BCR

Plan A costs \$5 per month plus \$0.10 per minute for calls.

Plan B costs \$8 per month plus \$0.07 per minute for calls.

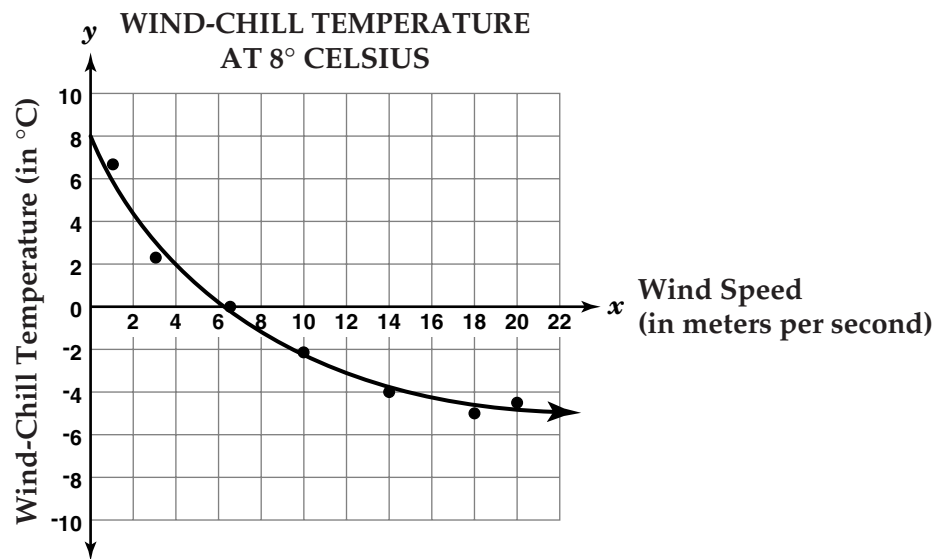
Complete the following in the Answer Book:

- How many minutes of calls would it take for Plan A and Plan B to cost the same? Use mathematics to explain how you determined your answer. 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.)



10 Wind makes the air feel colder than the actual temperature. This is called wind chill. The graph below shows the wind-chill temperatures for various wind speeds when the actual air temperature is 8° Celsius. A curve of best fit has been drawn.

BCR



Complete the following in the Answer Book:

- For what wind speed is the wind-chill temperature 0° Celsius? Use mathematics to explain how you determined your answer. Use words, symbols, or both in your explanation.
- Use the graph to explain how the wind-chill temperature changes in comparison to the wind speed. Include an estimate of when the effect of the wind levels off.



- 11** The table below shows the average daily temperatures, in degrees Fahrenheit ($^{\circ}\text{F}$), for four selected cities. The average daily temperatures are given for the months of January and July.

AVERAGE DAILY TEMPERATURES (IN $^{\circ}\text{F}$)

City	January	July
Baltimore	40.0	87.0
Mexico City	70.3	73.8
Tokyo	49.1	83.8
Toronto	27.5	80.2

According to the information in the table, which city experiences the greatest range of temperatures between January and July?

- A Baltimore
- B Mexico City
- C Tokyo
- D Toronto



12 A television producer wants to broadcast a new program for young children. The table below shows information on the average daily television viewing time for two age groups of children.

AVERAGE DAILY TELEVISION VIEWING TIME (BY TIME PERIOD)

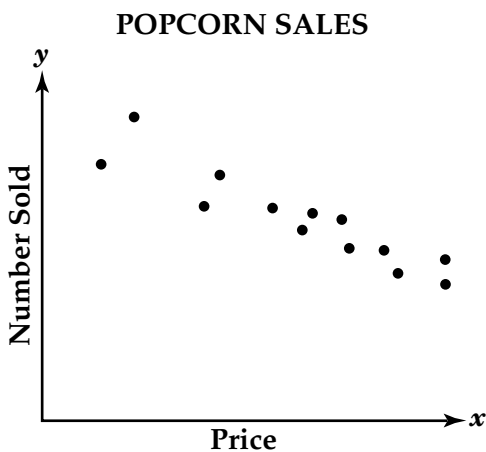
Age Group (years)	7 to 10 a.m.	10 a.m. to 1 p.m.	1 to 4 p.m.	4 to 7 p.m.	7 to 10 p.m.
2-5	1 hr 13 min	45 min	17 min	43 min	10 min
6-11	3 min	5 min	3 min	35 min	55 min

Based on the data in the table, which time period would be the best choice for the new television program for 2- to 5-year-olds?

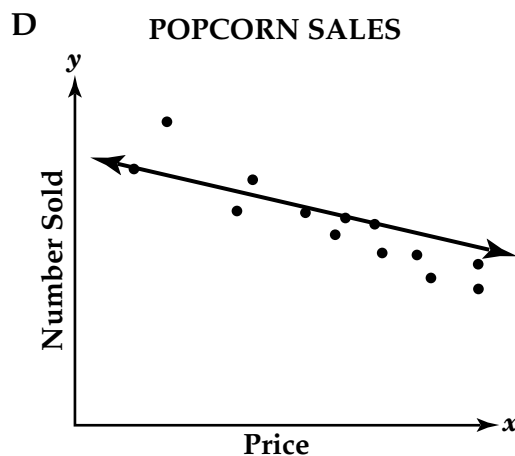
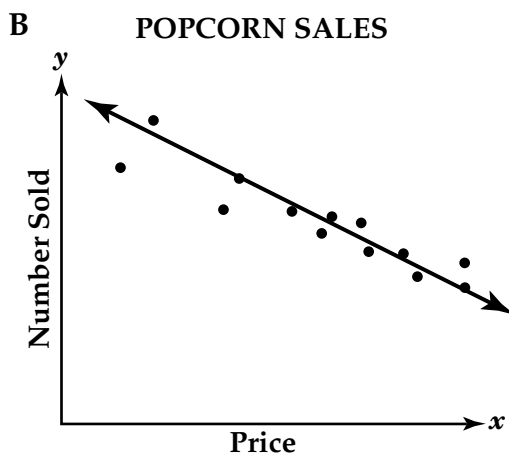
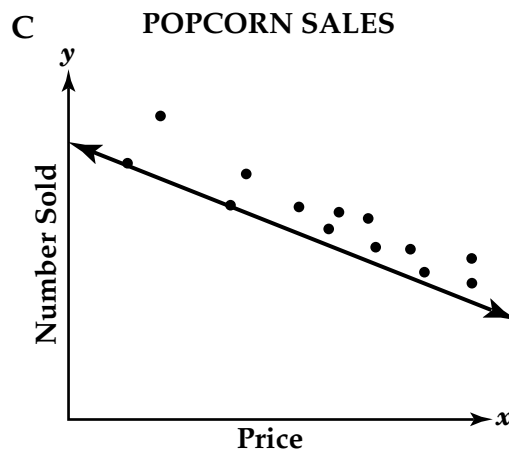
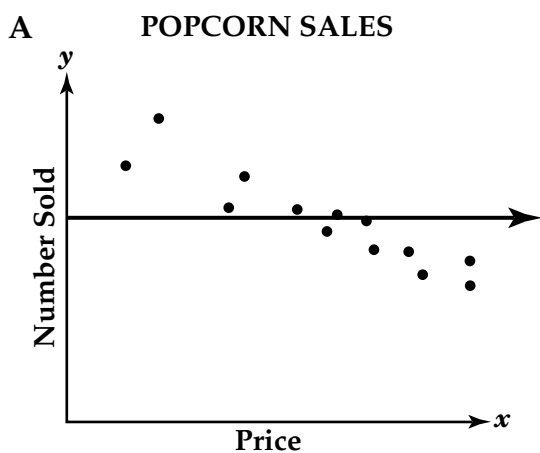
- F 7 to 10 a.m.
- G 10 a.m. to 1 p.m.
- H 4 to 7 p.m.
- J 7 to 10 p.m.



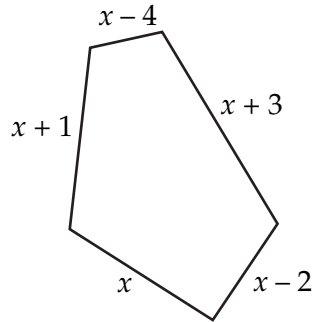
- 13** The scatter plot below shows the relationship between the number of bags of popcorn that are sold and the price per bag.



Which of these graphs shows the line of best fit?



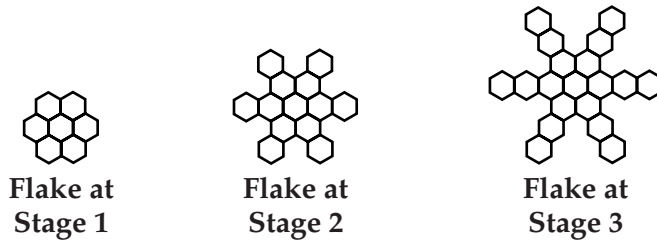
- 14** A drawing of the swimming pool at Buckwood Camp is shown below.



Which of these expressions represents the perimeter of the pool?

- F** $x + (x + 1) + (x - 4) + (x + 3) + (x - 2)$
G $x - (x + 1) - (x - 4) - (x + 3) - (x - 2)$
H $(x)(x)(x)(x)(x) + (1 - 4 + 3 - 2)$
J $x(x + 1)(x - 4)(x + 3)(x - 2)$

- 15** Certain ice crystals have six sides. Flakes are formed when these six-sided ice crystals connect. One pattern is shown below.
ECR



Complete the following in the Answer Book:

- Complete the table to show the total number of crystals in each of the first 6 stages of flake growth.

FLAKE GROWTH

Stage Number	Total Number of Crystals
1	7
2	13
3	?
4	?
5	?
6	?

- The Answer Book shows the pattern for the Flake at Stage 3. Change the drawing in the Answer Book to show the pattern for the Flake at Stage 4.
- Using the data in the completed table, draw a scatter plot on the grid provided in the Answer Book.
- Write an equation that represents the total number of crystals (c) at each stage number (n). Use mathematics to explain how you determined your equation. Use words, symbols, or both in your explanation.



- 16** A spinner has spaces labeled X, Y, and Z. The spinner was spun 20 times. The results are shown in the table below.

RESULTS OF
SPINNER EXPERIMENT

Letter	Number of Times Spinner Landed on Letter
X	4
Y	3
Z	13

According to this data, what is the experimental probability that the spinner will land on Y?

F $\frac{3}{20}$

G $\frac{4}{20}$

H $\frac{13}{20}$

J $\frac{17}{20}$



- 17** Each year Ms. Fong, a physics teacher, has her students build bridges out of toothpicks. Last year Ms. Fong recorded the number of toothpicks that 20 of her students used. Her list is shown below.

NUMBER OF TOOTHPICKS USED BY EACH STUDENT

157	200	150	175	130
160	172	157	142	135
144	157	162	140	131
121	136	132	158	141

Ms. Fong will use the mode of this data set to determine the number of toothpicks needed for each student this year. How many toothpicks will be needed for each student?

- A 147
- B 150
- C 157
- D 200



18 The Jaguar Soccer Club is joining the Tiger Soccer Club to create a new county soccer program. The enrollment in each of the clubs is shown below.

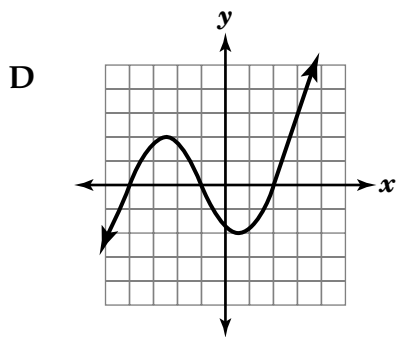
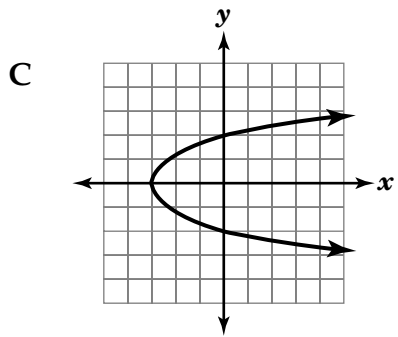
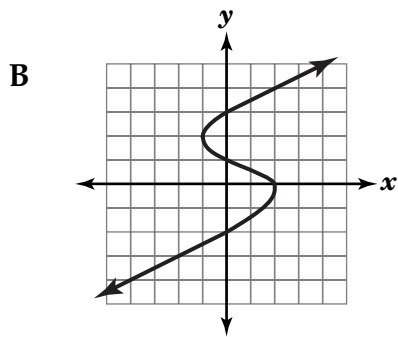
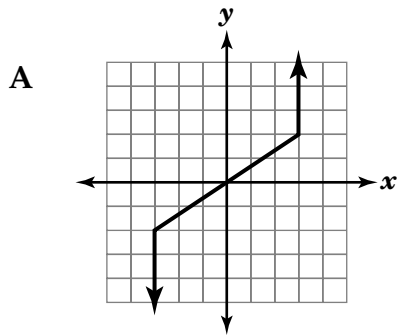
JAGUAR SOCCER CLUB					TIGER SOCCER CLUB				
Ages					Ages				
	5-7	8-9	10-11	12-14		5-7	8-9	10-11	12-14
Boys	58	52	57	48	Boys	62	60	57	51
Girls	37	40	32	28	Girls	40	41	39	30

What will be the total number of girls in the new county program?

- F 137
- G 150
- H 287
- J 445



19 Which of these graphs shows a functional relationship?



20 The total bill for repairing Steve's television was \$125. The repair shop charged \$25 an hour for labor plus \$19 for parts. How many hours of labor did it take to repair Steve's television? Round the answer to the nearest tenth of an hour.

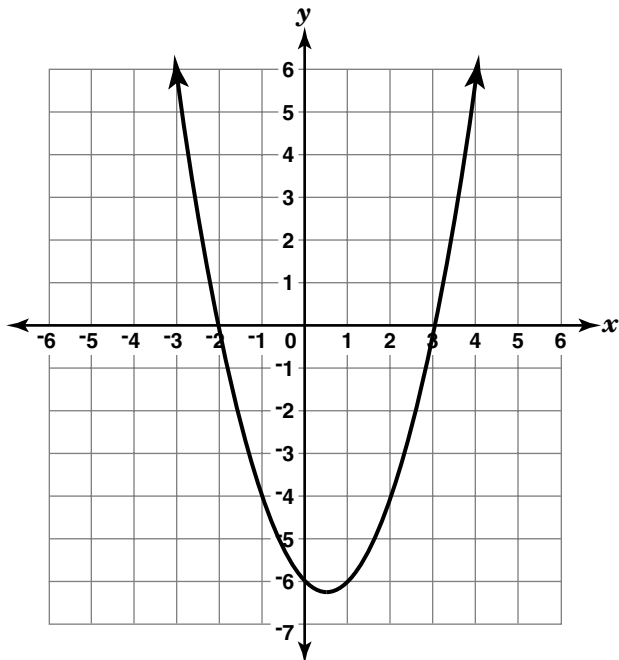
F 4.2 hours

G 5.0 hours

H 5.3 hours

J 7.9 hours

21 The function $f(x) = x^2 - x - 6$ is graphed on the grid below.



What are the zeros of this function?

- A -2 and 3
- B 0 and -6
- C $\frac{1}{2}$ and $-6\frac{1}{4}$
- D $-\frac{1}{2}$ and $6\frac{1}{4}$



- 22** The Smith family is saving to buy a stereo. They have \$100 now and plan to save \$30 each month.

ECR

Complete the following in the Answer Book:

- Write an equation that represents the amount of money the Smith family will save, where m represents the money saved and t represents the time, in months.

The price of the stereo is now \$200, but it is increasing at the rate of \$10 each month.

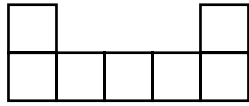
- Write an equation that represents the money needed to buy the stereo, where m represents the money needed to buy the stereo and t represents the time in months.
- Graph your two equations on the grid provided in the Answer Book. (Suggested graphing window: $0 \leq x \leq 10$, $0 \leq y \leq 300$.)
- In how many months will the Smith family have enough money to buy the stereo? Use mathematics to justify your answer.



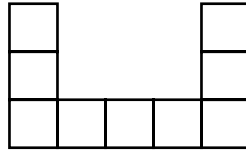
Session **2**

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 55 minutes to complete Session 2.

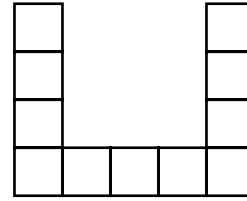
- 23** Tommy used building blocks to create the designs below.



Design 1



Design 2



Design 3

The table below shows the number of blocks in each design.

DESIGN TABLE

Design Number (d)	1	2	3
Number of Blocks in Design (b)	7	9	11

Which of these equations shows the relationship between the design number (d) and the number of blocks (b) in the design?

- A $b = d + 6$
 B $b = 2d + 5$
 C $b = 3d + 2$
 D $b = 4d + 3$

24 Manuel has budgeted \$80 a day to rent a truck. The rental company charges \$35 a day plus \$0.25 per mile. Which of these inequalities represents the number of miles (m) Manuel can drive in one day and stay within his budget?

F $m \leq 180$

G $m \geq 180$

H $m \leq 460$

J $m \geq 460$

25 While on a business trip to France, Bob felt ill. The hotel manager gave him a thermometer which measured his temperature in degrees Celsius. The thermometer read 38°C . The formula below is used to convert temperatures in degrees Celsius (C) to degrees Fahrenheit (F).

$$F = \frac{9}{5}C + 32$$

What is Bob's temperature in degrees Fahrenheit? Round the answer to the nearest whole number.

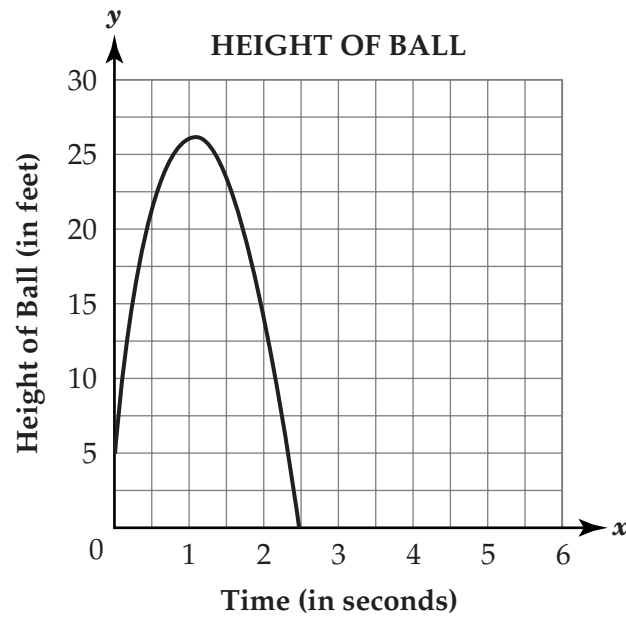
A 99°F

B 100°F

C 101°F

D 102°F

- 26** Jane threw a ball into the air. The graph below shows the relationship between the number of seconds that the ball was in the air and the height of the ball.



How many seconds after Jane threw the ball did the ball hit the ground?

- F 1 second
- G 1.2 seconds
- H 2.5 seconds
- J 5 seconds

27 A businesswoman calculates that the median cost of her five business trips last month was \$600. Which of these statements is correct?

- A She spent a total of \$3,000 on business trips last month.
- B She spent \$600 on most of the business trips last month.
- C She spent \$600 or more on at least half of the business trips last month.
- D She spent \$600 more on her most expensive business trip than she did on her least expensive trip.

28 Mr. Jones wants to order notebooks for the school store. Notebooks come in four colors: red, blue, green, and black. He randomly surveyed 50 students to determine which color notebook they would buy. The table below shows the results.

NOTEBOOK COLOR VOTES

Color	Red	Blue	Green	Black
Number of Votes	16	22	5	7

Mr. Jones will order 400 notebooks. How many blue notebooks should he order?

- F 22
- G 88
- H 176
- J 200



29**BCR**

The administration of Central High School has decided to add a new sport for next year's ninth-grade girls. They are considering adding either soccer, tennis, or track. The administration needs to design an investigation in which 30 ninth-grade girls are surveyed to decide which new sport next year's ninth-grade girls would prefer.

Complete the following in the Answer Book:

- Based on simple random sample principles, explain at least two of the key elements that should be part of the administration's design.



30 The table below shows the distances, in miles, and the lowest-priced airfares, in dollars, of flights from Baltimore to various destinations.
BCR

LOWEST-PRICED AIRFARES FROM BALTIMORE

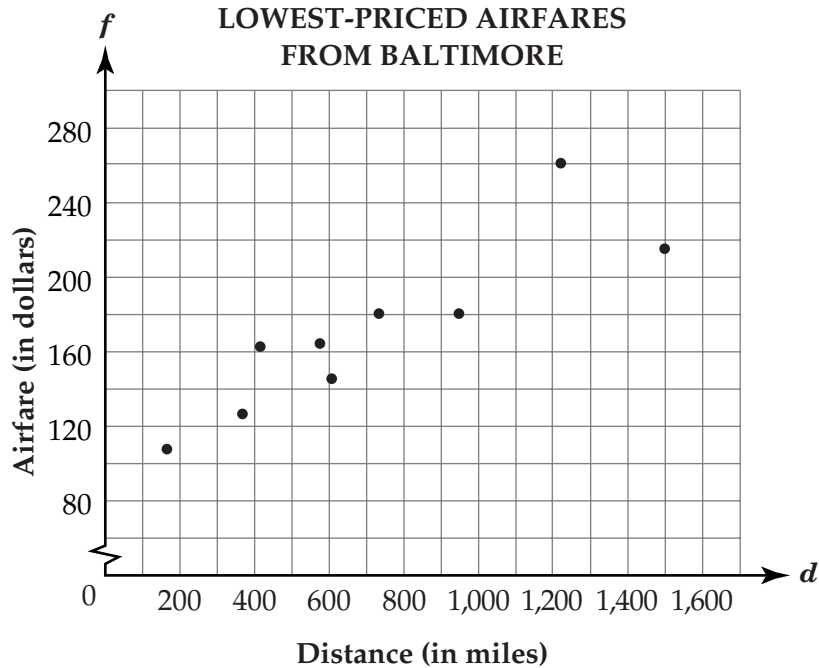
Destination	Distance (in miles)	Airfare
Atlanta	576	\$164
Boston	370	\$124
Chicago	612	\$143
Dallas	1,216	\$260
Detroit	409	\$161
Denver	1,502	\$216
Miami	946	\$180
New York	189	\$108
St. Louis	737	\$180

The data from the table is graphed on the scatter plot on the next page.
 (Number 30 continues on the next page.)



30 (Number 30 is continued from the previous page.)

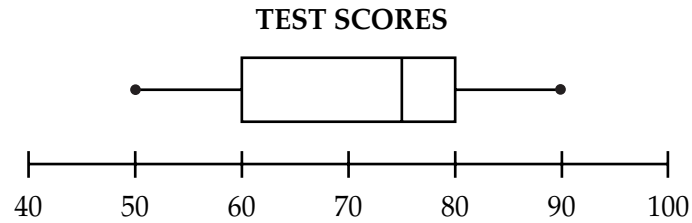
BCR The data from the previous page has been graphed below.



Complete the following in the Answer Book:

- Write an equation for a line of best fit that can represent the relationship between the distance (d) traveled and the lowest-priced airfare (f).
- Graph the equation for your line of best fit on the scatter plot provided in the Answer Book.
- According to your equation, what is the cost of a plane ticket to Orlando, which is 790 miles from Baltimore? Use mathematics to justify your answer.

- 31** The box-and-whisker plot below summarizes the test scores of an algebra class.



Based on the box-and-whisker plot, which of these must be true?

- A The median score is 70.
- B The lower quartile score is 50.
- C Half of the scores are between 60 and 75.
- D The interquartile range is half of the range.

- 32** Look at the equation below.

$$y = x^2 + 6$$

Which of these tables represents solutions for this equation?

F

x	-1	0	1	2
y	49	36	49	64

G

x	-1	0	1	2
y	7	6	7	10

H

x	-1	0	1	2
y	5	6	7	10

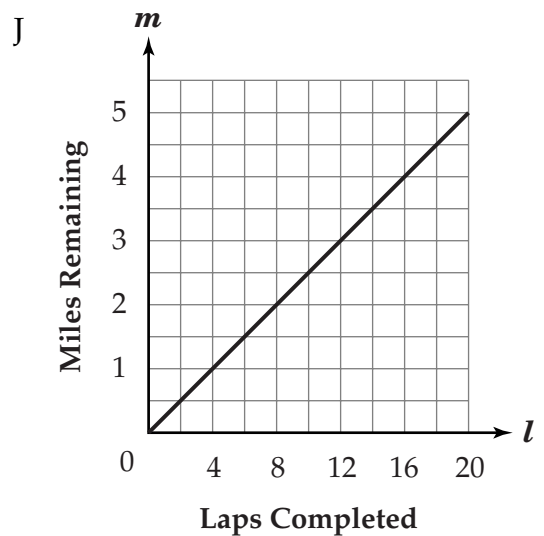
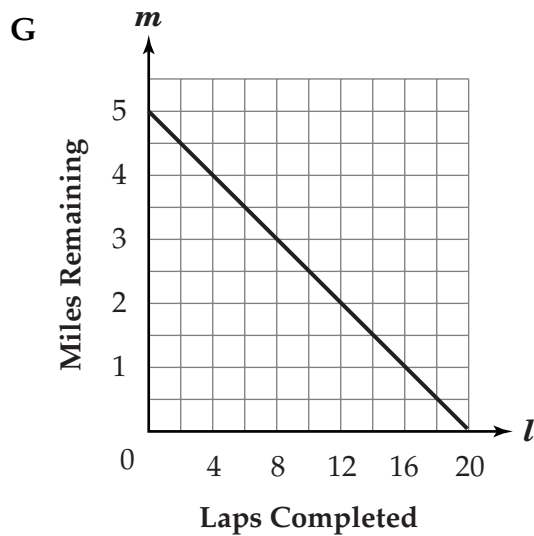
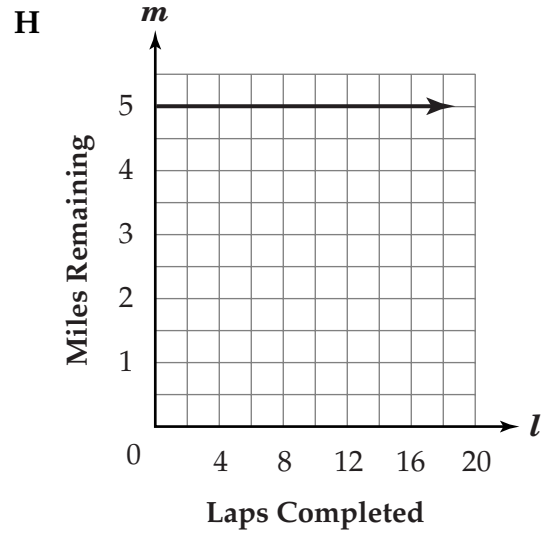
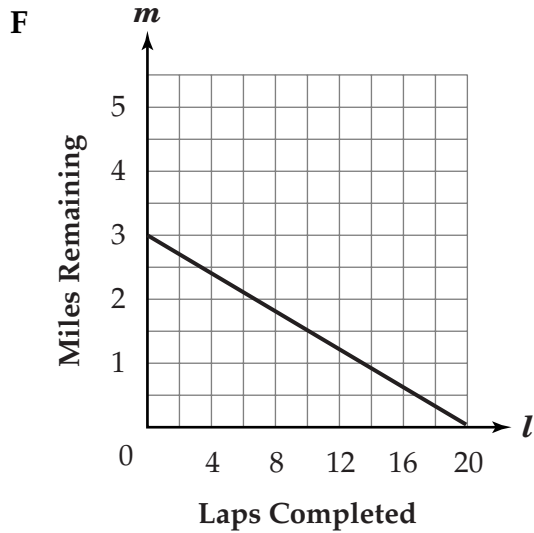
J

x	-1	0	1	2
y	25	6	49	64

- 33** The state sales tax rate in Maryland is 5%. What is the total price of an item that costs x dollars?

- A $0.05x$
 B $x + 0.05$
 C $x + 0.05x$
 D $0.5x$

34 Courtney wants to run a total of 5 miles around a $\frac{1}{4}$ -mile track. Which of these graphs represents the relationship between laps completed (l) and miles remaining (m)?



- 35** The Sanchez family is planning a trip to an amusement park. The park has two ticket plans.

Plan A offers a weekend pass for \$12 plus \$0.50 per ride.

Plan B is \$1.25 for each ride.

Let x represent the number of rides each person will ride and y represent the cost per person, in dollars. Which of these systems of equations could be used to choose a ticket plan?

A $y = 0.50x + 12$

$y = 1.25x$

B $y = 12x + 0.50$

$y = x + 1.25$

C $y = 0.50x$

$y = 1.25x$

D $y = x + 12$

$y = x + 1.25$



- 36** The table below shows information about the students in Ms. Murphy's algebra class.

STUDENTS WHO RIDE THE BUS

	Male	Female
Rides the Bus	6	8
Does Not Ride the Bus	9	5

What is the probability that a randomly selected male student does not ride the bus to school?

F $\frac{9}{28}$

G $\frac{9}{14}$

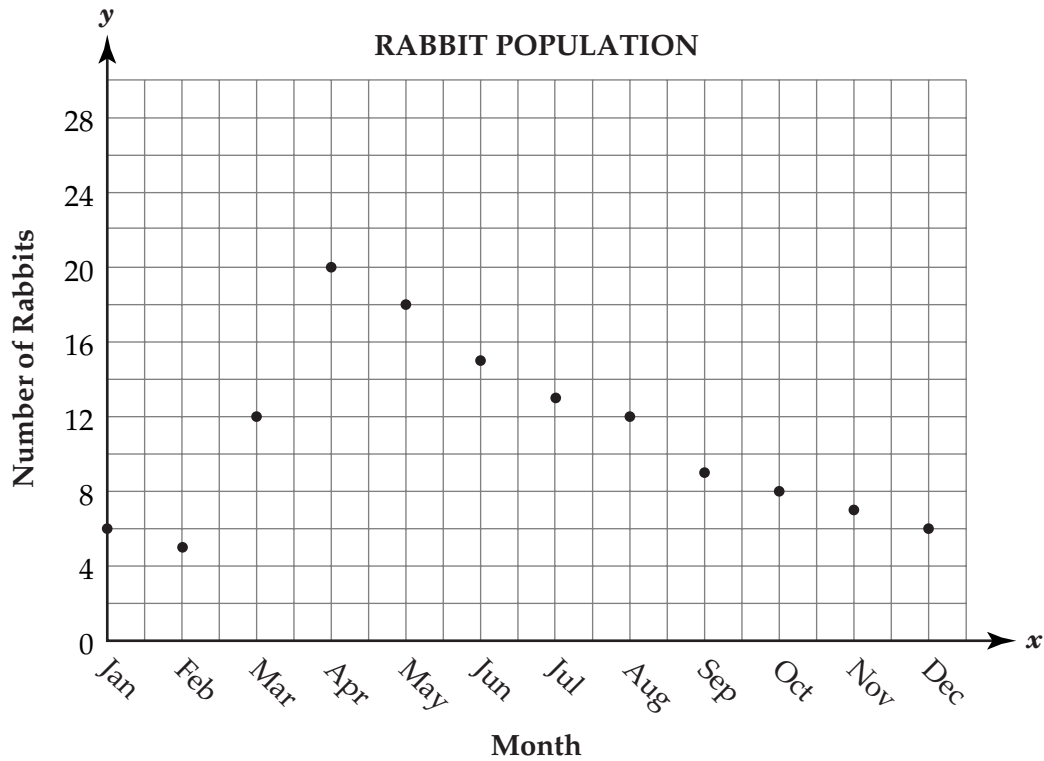
H $\frac{15}{28}$

J $\frac{9}{15}$

Directions

Use the Response Grids in the Answer Book to complete Numbers 37 through 39.

- 37** The scatter plot below shows the rabbit population in Smith Field during 1998.



What was the minimum rabbit population in Smith Field during 1998?

- 38** Kareem is going to Florida. The cost for two different vacation packages is shown below.

FLORIDA VACATION PACKAGES

Package	A	B
Roundtrip Airfare Cost	\$150	\$210
Hotel Cost (per night)	\$55	\$40

How many nights would Kareem need to stay in a hotel to pay the same amount for either vacation package?

- 39** A recent survey of Americans who work outside the home found that 10% take public transportation, 80% drive to work, and 10% use other forms of transportation.

Meghan used a random number generator to simulate the various methods that a group of five people may use to get to work. For her simulation, Meghan assigned digits to the various methods of transportation as shown in the table below.

TRANSPORTATION SIMULATION

Random Digit	Type of Transportation
0	public
1 through 8	drive
9	other

She ran the simulation 10 times, and the results are shown below.

69969	80939	49510	73686	62625
19598	31305	40702	62385	67996

Based on Meghan's simulation, what is the probability that all 5 people in the group drive to work?

40 The table below shows the salaries of the teachers at Polk High School.

BCR

SALARIES OF TEACHERS AT POLK HIGH SCHOOL

Number of Teachers	Experience Level	Annual Salary
9	Teachers with 15+ years experience	\$48,400
13	Teachers with 10–14 years experience	\$43,700
1	Teachers with 7–9 years experience	\$39,400
12	Teachers with 4–6 years experience	\$35,100
11	Teachers with 2–3 years experience	\$30,400
5	Teachers with 1 year experience	\$28,200

Complete the following in the Answer Book:

- What are the median and mean of this salary data? Use mathematics to explain how you determined your answers. Use words, symbols, or both in your explanation.
- A journalist who believes that teachers earn too much money is going to write an article based on this data. Which measure of central tendency (mean or median) should the journalist use to convince the public to agree with her opinion? Use mathematics to justify your answer.

- 41** Ms. Madison, a dance teacher, wants to know if students would go to an after-school dance. According to simple random sampling principles, which of these is the best method to survey students about the dance?
- A Ask 50 girls to complete a survey.
 - B Ask 50 students who attended the last dance.
 - C Ask 50 randomly selected students from her classes.
 - D Ask 50 randomly selected students from the school.
- 42** David sells both daylight and underwater cameras. For each daylight camera he sells, he makes \$2, and for each underwater camera he sells, he loses \$1. Let d represent the number of daylight cameras and u represent the number of underwater cameras sold. Which of these inequalities must be true for David to make money selling these cameras?
- F $2d + u < 0$
 - G $2d + u > 0$
 - H $2d - u < 0$
 - J $2d - u > 0$

- 43** Wind makes the air feel colder than the actual temperature. This is called wind chill. The table below shows the effect that a 20-mile-per-hour wind has on the actual air temperature.

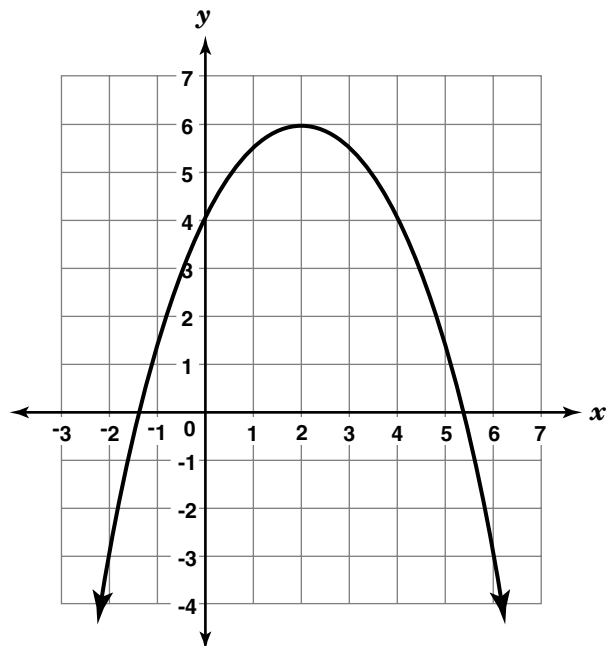
WIND-CHILL EFFECT OF 20-MILE-PER-HOUR WIND

Actual Temperature (t)	Wind-Chill Temperature (w)
45°F	25°F
25°F	-3°F
5°F	-31°F

Which of these equations represents the relationship between the actual temperature (t) and the wind-chill temperature (w)?

- A $w = 0.714t - 7$
B $w = 0.714t + 7$
C $w = 1.4t - 38$
D $w = 1.4t + 38$

44 Look at the graph below.



Which of these terms describes the y -coordinate of the point (2, 6)?

- F zero
- G intercept
- H minimum
- J maximum

- 45** A parachutist is 500 feet above the ground. After she opens her parachute, she falls at a constant rate of 5 feet per second. Which of these equations gives her height (h) above the ground in terms of seconds (t)?

- A $h = 5 - 500t$
 B $h = 500 - 5t$
 C $h = -500 + 5t$
 D $h = 5 + 500t$

- 46** Each day the local music store completes a starting and ending inventory of all cassettes and CDs. The matrices below show the inventory for jazz and rock music on a given day.

STARTING INVENTORY			ENDING INVENTORY		
	Jazz	Rock		Jazz	Rock
Cassettes	129	251	Cassettes	107	225
CDs	214	185	CDs	182	164

Which of these categories showed the largest change from the start of the day to the end of the day?

- F Jazz cassettes
 G Rock cassettes
 H Jazz CDs
 J Rock CDs



- 47** In a simulation designed to represent families with two children, two coins are tossed to model the gender of each child. The results of 50 trials are shown in the table below.

GENDER SIMULATION

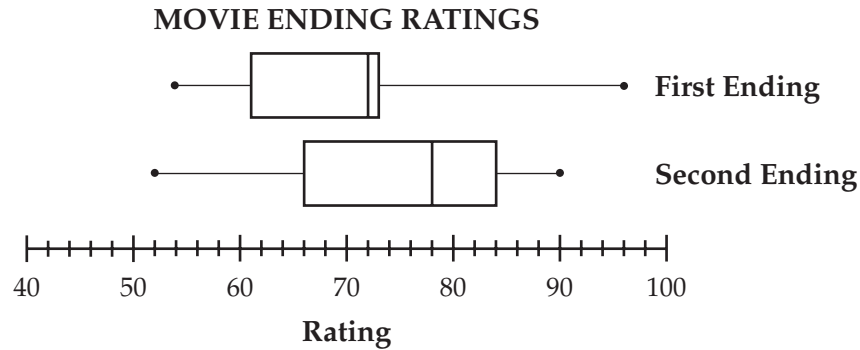
First Child	Second Child	Frequency
boy	boy	15
boy	girl	14
girl	boy	8
girl	girl	13

Based on the results in the table, what is the probability that a family with two children have at least one boy?

- A 0.30
 B 0.44
 C 0.58
 D 0.74
- 48** A quality control engineer for the Have Fun Toys Company tested 800 video game cartridges and found 3 defective cartridges. The company plans to produce 500,000 video game cartridges this year. Based on the findings, how many video game cartridges can be expected to be defective?
- F 16
 G 20
 H 1,875
 J 2,000

49
ECR

A movie producer is considering two different endings for a movie. To decide which ending is better, the producer randomly selected two groups of people to watch each ending. There were 200 people in each group. The two groups rated the movie endings on a scale of 1 to 100. The box-and-whisker plots below show a summary of their results.



Complete the following in the Answer Book:

- Which ending had a higher median rating? Use mathematics to justify your answer.
- Which ending had a wider range of ratings? Use mathematics to justify your answer.
- Based on the data shown in the box-and-whisker plots, the movie producer decided that the first ending was better than the second ending. Is this a valid conclusion to make from the data given? Use mathematics to justify your answer.

