Question 2
Benchmark A
Spring 2010

2. An input-output table is shown.

Input	Output
0	1
2	5
6	*m*
10	21

Which value of *m* fits the pattern in the table?

A. 7
B. 9
C. 12
D. 13

Question 31
Benchmark A
Spring 2007

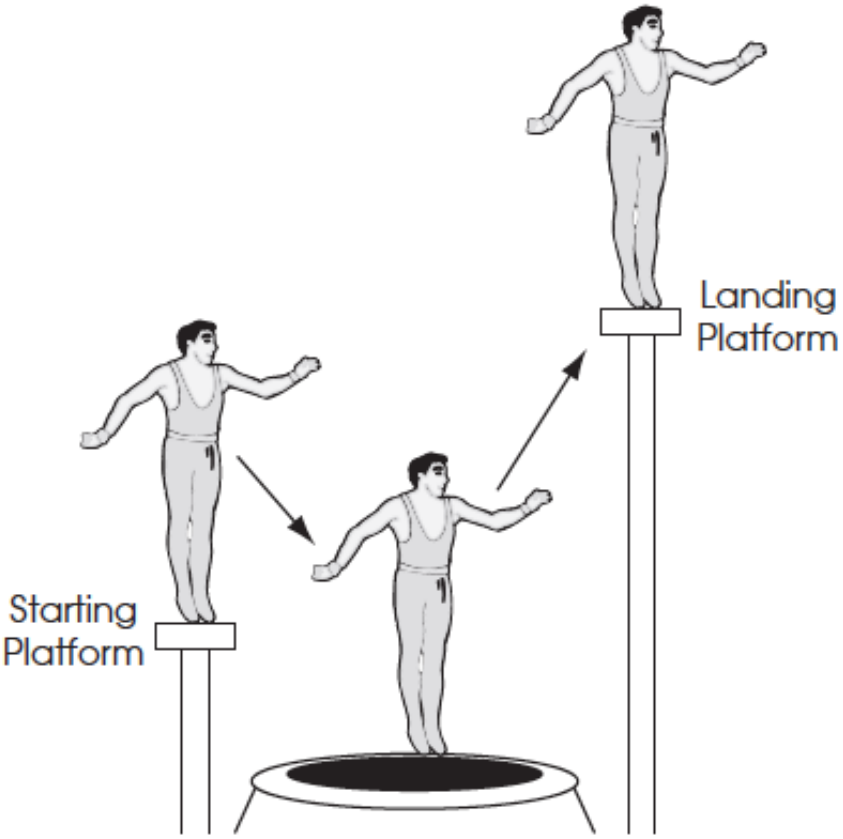
A pattern is shown.

1, 4, 13, 40, 121, . . .

In your **Answer Document**, describe the rule for the pattern and find the next term. Show how you found the next term in the pattern.

Question 43
Benchmark C
Spring 2010

43. A circus acrobat uses a trampoline and two platforms for part of his act, as shown.



The height of the landing platform can be found by doubling the height of the starting platform and then adding 2 feet. The landing platform has a height of 10 feet.

What is the height of the starting platform?

A. 4 feet

B. 5 feet

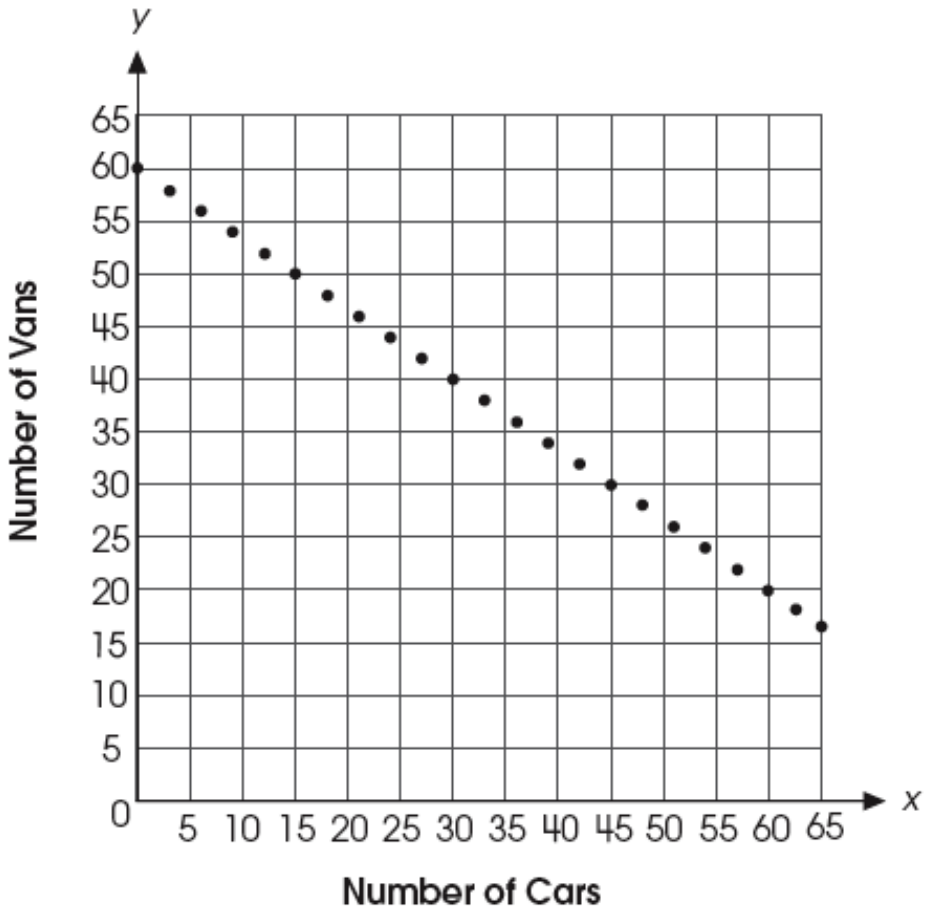
C. 10 feet

D. 22 feet

Question 3
Benchmark C
Spring 2007

The student council is holding a car wash. Council members are charging $4 for cars and $6 for vans.

The graph shows some possible combinations of cars and vans they could wash to reach their goal of $360.



They washed 30 vans. How many cars did they need to wash to earn exactly $360?

A. 12

B. 40

C. 45

D. 60

Question 7
Benchmark D
March 2007

Which expression is equivalent to $\frac{8}{9}$?

A. $8 \div \frac{1}{9}$

B. $8 \div 9$

C. $9 \div \frac{1}{8}$

D. $9 \div 8$

Question 19
Benchmark D
March 2006

Andrew buys books and videos in a store. He uses the expression $6b + 12v$ to find the cost of what he is buying, where b is the number of books and v is the number of videos he buys.

Use the expression to find the total cost of 4 books and 5 videos.

A. $27

B. $54

C. $78

D. $84

Question 44
Benchmark D
March 2006

Which expression is equivalent to $(4 \times 3) + (4 \times 8)$?

A. 16×8

B. $4 \times (3 \times 8)$

C. $4 \times (3 + 8)$

D. 4×35

Question 3
Benchmark E
March 2008

Monica created the number pattern shown.

2, 5, 11, 23, 47, . . .

Which rule describes Monica's number pattern?

A. Add three to the previous number.
B. Double the previous number.
C. Double the previous number and add 1.
D. Triple the previous number and subtract 1.

Question 6
Benchmark E
March 2006

Jeff drew a pattern of dots and made the table shown to describe the pattern.

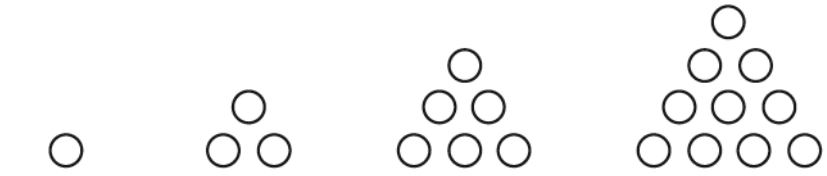


Figure 1 Figure 2 Figure 3 Figure 4

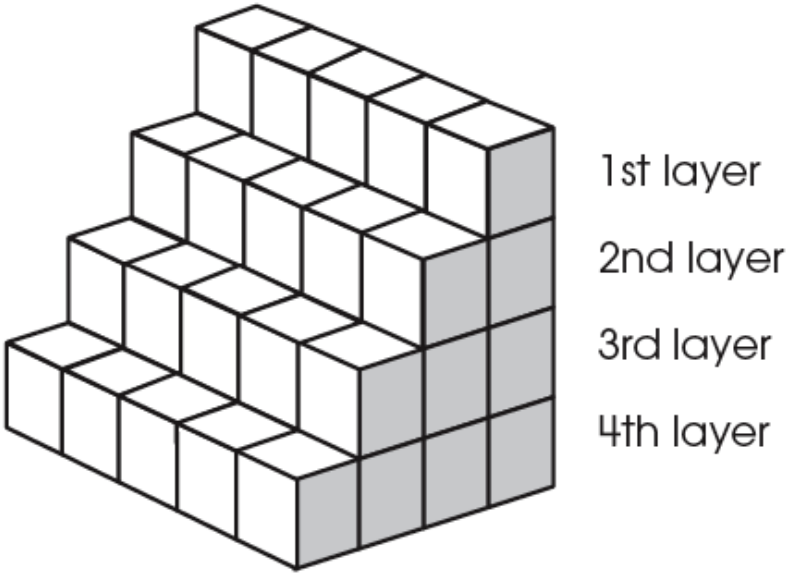
Figure	1	2	3	4	5	6
Number of Dots	1	3	6	10	15	21

In your **Answer Document**, write a rule that Jeff can use to find the number of dots for any figure in this pattern. Show or explain your answer.

For question 6, respond completely in your **Answer Document**. (2 points)

Question 41
Benchmark E
March 2006

The top 4 layers of a 10-layer staircase are shown.



In your **Answer Document**, tell how many blocks are in the 10th layer of the staircase if the pattern continues. Show or explain how you found your answer.

Question 13
Benchmark E
Spring 2007

An input-output table is shown.

Input	Output
2	5
4	6
6	7
8	8
10	9

Which rule describes this input-output function?

A. double the input, and add 1

B. add 1 to each input number

C. add 2 to each input number

D. divide the input by 2, and add 4

Question 29
Benchmark G
Spring 2010

29. Kate has a paper route. She earns $5.00 each week and $0.25 for each paper she delivers.

Kate can use the equation $e = \$5 + \$0.25n$, where e represents the total amount of money earned and n represents the number of papers she delivers, to find the amount of money she can earn.

How much money will Kate earn when she delivers 40 papers in one week?

A. $ 5.25
B. $15.00
C. $30.00
D. $45.00

Question 19
Benchmark G
March 2006

Andrew buys books and videos in a store. He uses the expression $6b + 12v$ to find the cost of what he is buying, where b is the number of books and v is the number of videos he buys.

Use the expression to find the total cost of 4 books and 5 videos.

A. $27

B. $54

C. $78

D. $84

Question 8
Benchmark H
Spring 2009

What is the value of x when $3x + 11 = 20$?

A. 3

B. $\frac{20}{3}$

C. 9

D. $\frac{31}{3}$

Question 23
Benchmark H
March 2006

Kristi is selling candy bars to raise money for her track team. Each of her neighbors bought 4 candy bars. She also sold 18 candy bars to her friends at school for a total of 38 candy bars. The equation $4x + 18 = 38$ represents this situation where x is the number of neighbors.

How many neighbors bought candy bars from Kristi?

A. $x = 5$

B. $x = 14$

C. $x = 16$

D. $x = 80$

Question 43
Benchmark H
March 2006

Solve for x: $2x + 5 < 17$

A. $x > 6$

B. $x < 6$

C. $x > 10$

D. $x < 10$

Question 23
Benchmark J
Spring 2009

Lawrence knows that as the steepness of a hill increases, his running speed decreases.

Which graph shows this relationship?

A.

B.

C.

D.

Question 32
Benchmark K
Spring 2009

Which value for f makes the inequality $7f - 9 > 12$ true?

A. when f is -3

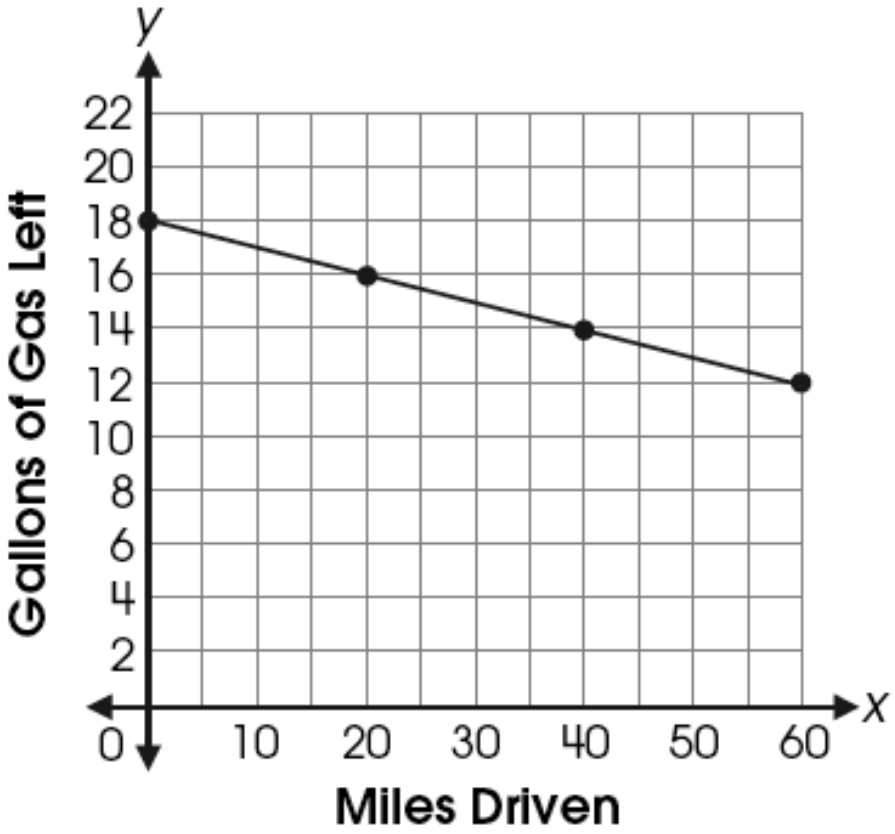
B. when f is 1

C. when f is 3

D. when f is 5

Question 41
Benchmark K
Spring 2009

The graph shows the relationship between gallons of gas left in the gas tank of a truck and the number of miles driven.



In your **Answer Document**, determine the number of miles per gallon the truck gets. Explain how you found the number of miles per gallon.

Question 42
Benchmark L
Spring 2007

Sal had a cactus that was 10 inches tall after 10 weeks. After 12 weeks, it was 14 inches tall, and after 13 weeks it was 15 inches tall.

Which statement describes the rate of change in the height of his cactus?

A. no rate of change

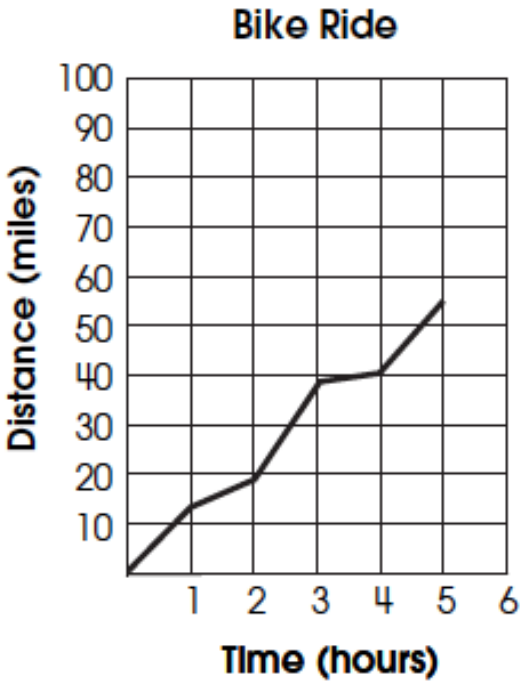
B. varying rate of change

C. constant rate of change

D. decreasing rate of change

Question 32
Benchmark M
Spring 2010

32. The graph shows the distance from home during a bike ride.



Which describes how the distance changes over time?

A. The distance decreases at a constant rate.

B. The distance increases at a constant rate.

C. The distance decreases at a varying rate.

D. The distance increases at a varying rate.

Question 31
Benchmark M
March 2008

Denise and Javier are hiking up the same trail. They measure how far they have hiked every 10 minutes. The table shows how far they have hiked.

Time (minutes)	Distance (meters)	
	Denise	Javier
0	0	0
10	300	200
20	600	500
30	900	1,000
40	1,200	1,200

In your **Answer Document**, explain who is hiking at a constant rate and who is hiking at a changing rate. Use the data in the table to support your answer.

Question 20
Benchmark M
March 2006

Which table shows a constant rate of decrease?

A.

Input	Output
54	36
55	23
56	15
57	7

B.

Input	Output
54	36
55	18
56	9
57	3

C.

Input	Output
54	23
55	21
56	19
57	17

D.

Input	Output
54	23
55	22
56	9
57	3

Question 28
Benchmark M
March 2006

The table shows Jim's savings over time.

Jim's Savings

Week	Savings
1	$45
2	$70
3	$95
4	$120

Which describes the rate of change of Jim's savings over time?

A. constant rate of decrease

B. constant rate of increase

C. varying rate of decrease

D. varying rate of increase