Grade 5 Math Authentic OAT Questions

Patterns, Functions, and Algebra Standard

1. Roberto had \$20. He bought a soccer ball that cost m dollars. He now has less than \$5 left.

   Which inequality represents this situation?

   A. $20 - m < 5$

   B. $20 - m > 5$

   C. $m - 20 < 5$

   D. $m - 20 > 5$

2. Grant does 20 sit-ups each day.

   Which expression represents the total number of sit-ups that Grant will do in n days?

   A. $n + 20$

   B. $n - 20$

   C. $n \times 20$

   D. $n \div 20$

3. Amber made the input-output table shown.

Input	Output
2	12
5	27
8	42
10	52

Which rule explains how to get the output number from the input number?

A. add 5, multiply by 2

B. add 10

C. multiply by 5, add 2

D. multiply by 6

4. Ethan rakes leaves to earn money. He uses the information in the table shown to find how long he takes to rake lawns of different sizes.

Size of Lawn (square feet)	Time to Rake (minutes)
200	40
250	50
300	60
350	70
400	80

On a separate piece of paper, write a rule that tells how the amount of time Ethan needs to rake a lawn is related to the number of square feet in the lawn.

One of Ethan's neighbors has a 150-square-foot lawn. Use the table or your rule to explain how long it will take Ethan to rake the lawn. Show or explain your work.

Use the table or your rule to tell what size lawn Ethan can rake in 65 minutes. Show or explain your work. (4 points)

5. Ryan is painting faces at the fair. It takes him 10 minutes to set up his materials. Each face takes 6 minutes to paint. Ryan wants to know how many faces (f) he can paint in 60 minutes.

Which equation represents this situation?

A. $6f + 10 = 60$

B. $10f + 6 = 60$

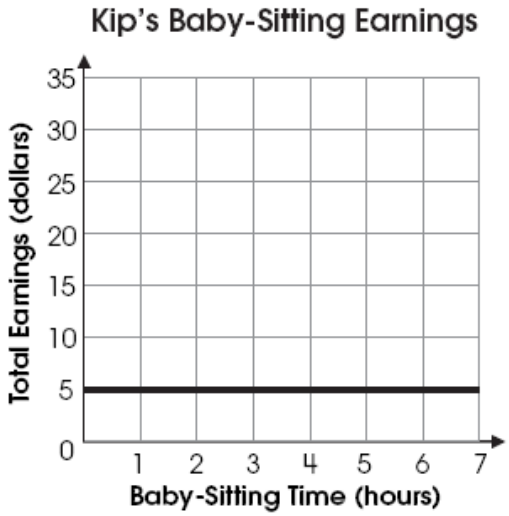
C. $6f - 10 = 60$

D. $10f - 6 = 60$

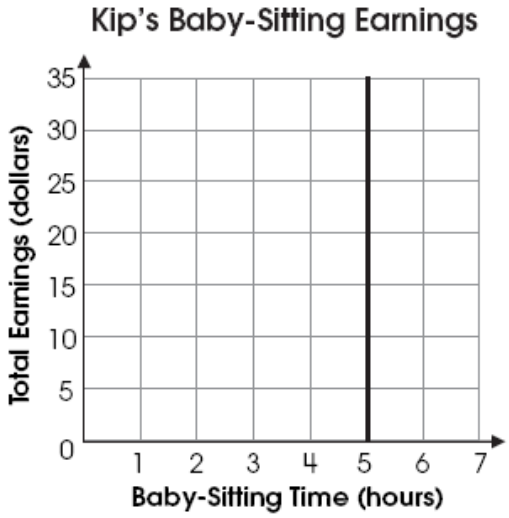
6. Kip earns $5 an hour baby-sitting.

Which graph represents the amount of money he earns over time?

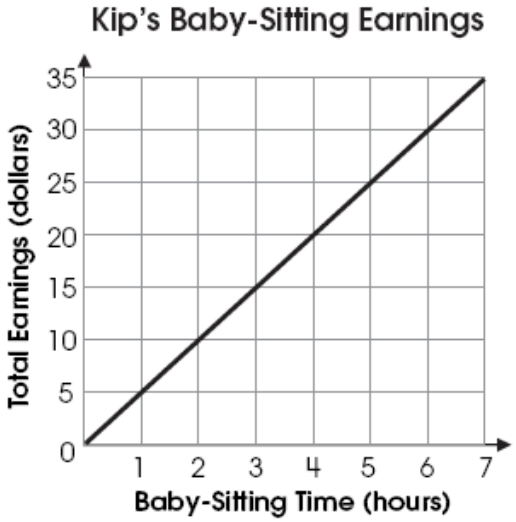
A.



B.



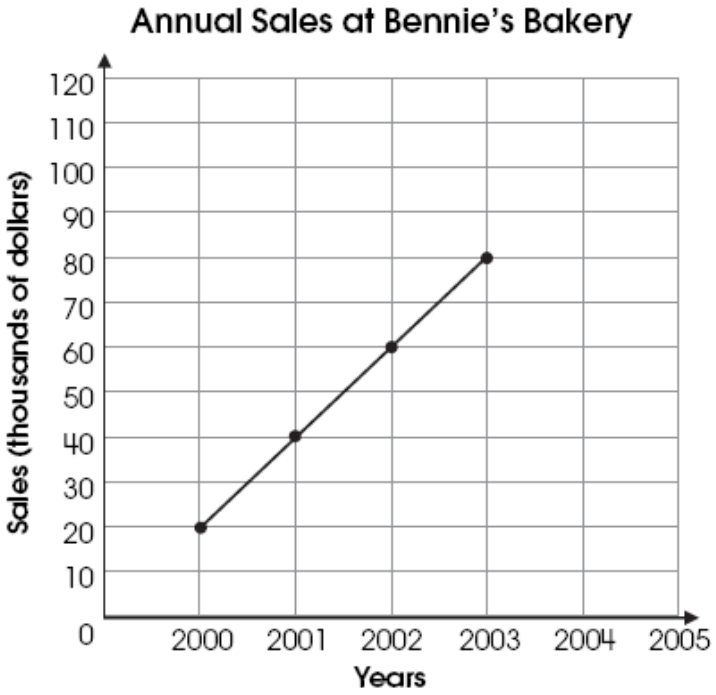
C.


Kip's Baby-Sitting Earnings
Total Earnings (dollars)
0
5
10
15
20
25
30
35
1
2
3
4
5
6
7
Baby-Sitting Time (hours)

D.


Kip's Baby-Sitting Earnings
Total Earnings (dollars)
0
5
10
15
20
25
30
35
1
2
3
4
5
6
7
Baby-Sitting Time (hours)

7. This graph shows annual sales at Bennie's Bakery during its first four years of business.



According to the graph, which prediction is reasonable for the annual sales in 2004?

A. $ 80,000

B. $ 90,000

C. $100,000

D. $120,000

8. Which problem situation is represented by the equation: $10 + 5x = 25$?

A. Bob has \$25. He started with \$10. Each of his 5 friends gave him the same amount of money (x). How much money did each friend give Bob?

B. Bob has \$25. He started with \$10. Each of his 3 friends gave him the same amount of money (x). How much money did each friend give Bob?

C. Bob has \$10. He gave each of his 5 friends the same amount of money (x). How many friends have \$25?

D. Bob has \$25. He gave each of his 15 friends the same amount of money (x). How much money did Bob give to each friend?

9. Robert earned \$4 each hour doing chores for his neighbors. He also earned \$20 working for his mother. Altogether, Robert earned \$80.

On a separate piece of paper, write an equation that shows this situation. Use your equation to find the number of hours Robert worked doing chores for his neighbors. (2 points)

10. A pattern is shown.

Which figure is next in this pattern?

A. 

B. 

C. 

D. 

11. A cheese pizza costs $7. Each topping has an additional cost. This table shows the cost of a cheese pizza with additional toppings.

Number of Toppings (n)	Total Cost of the Pizza (c)
1	$9
2	$11
3	$13
4	$15

Which equation represents this situation?

A. $c = n + 2$

B. $c = n + 8$

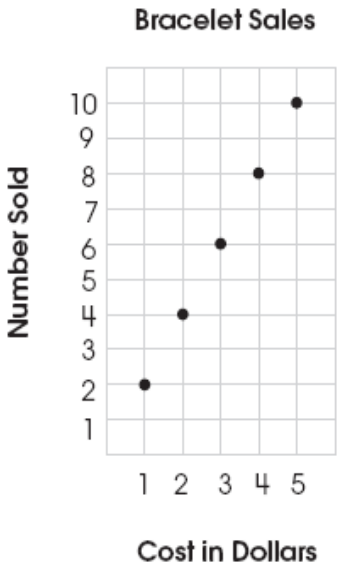
C. $c = 7 + (n + 2)$

D. $c = 7 + (n \times 2)$

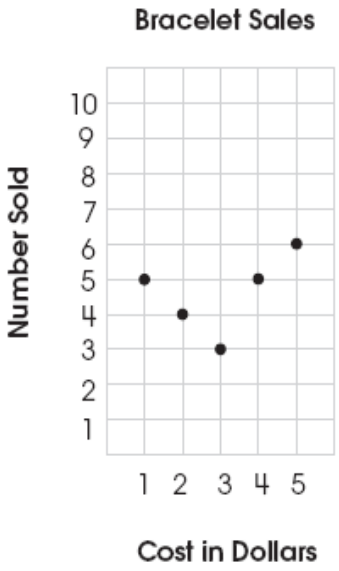
12. Chelsea made bracelets and sold them at craft fairs. She found that most people would pay up to $3.00 for a bracelet. When the price went above $3.00, her sales dropped.

Which graph might show Chelsea's sales as her prices went up?

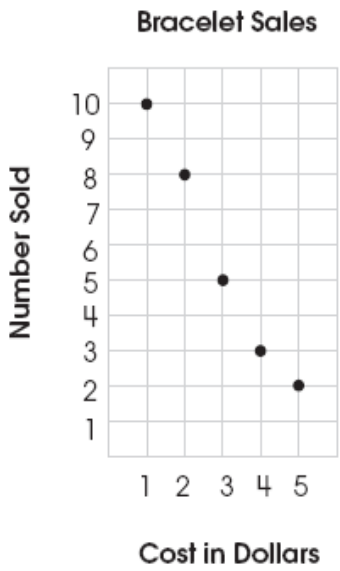
A.



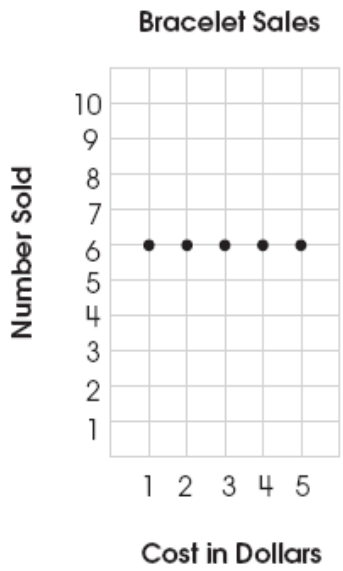
B.



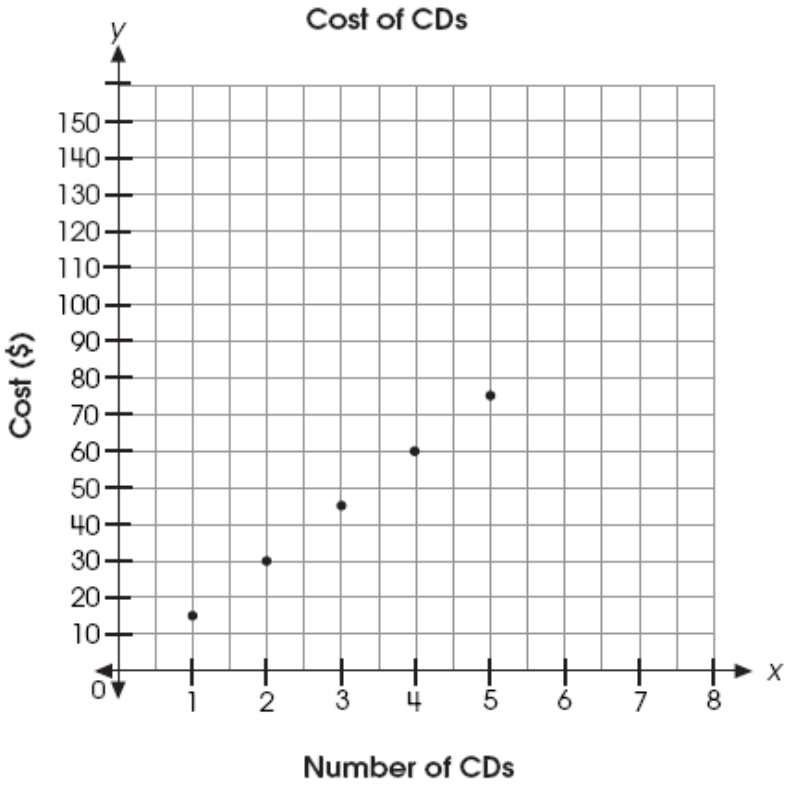
C.



D.



13. The graph shows the cost of different numbers of CDs.



What is a reasonable prediction for the number of CDs that can be purchased for $105?

A. 5

B. 6

C. 7

D. 8