

Quadratic and Cubic Functions Test**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

1. Look at the table shown below.

x	$y = f(x)$
1	-3
2	12
3	37
4	72

What type of function is represented in the table?

- A. Linear
 - B. Exponential
 - C. Quadratic
 - D. None of these
2. What type of function is represented in the table?

x	$f(x)$
-1	-3
0	-2
1	-1
2	6
3	25
4	62

- A. Linear
- B. Exponential
- C. Quadratic
- D. Cubic

3. A ball is thrown upward with an initial velocity of 30 meters per second. The position of the ball over time is recorded in the table below.

Time in Seconds, x	Distance from the Ground in meters, $f(x)$
0	0
1	25
2	40
3	45
4	40
5	25

Which quadratic function models the data?

- A. $f(x) = -5x^2 + 30x$
B. $f(x) = 30x^2$
C. $f(x) = 30x^2 - 5x$
D. $f(x) = -5x^2 - 30x$
4. Which of the following equations best models the quadratic data given below?

x	0	1	2	3	4	5	6
y	15	19	35	63	103	155	219

- A. $6x^2 - 1.9x + 14.8$
B. $6x^2 + 1.9x + 14.8$
C. $x^2 - 1.9x + 4.2$
D. $3x^2 - 19x + 18.4$

5. The volume of a set of shipping containers is shown in the table below.

Width of base, w (feet)	Volume, V (cubic feet)
0	0
1	4.5
2	20
3	52.5
4	108
5	192.5

Which of the following equations best represents the volume, V , based on the width of the base of the container, w ?

- A. $V = w^3 + 2.5w^2 + w$
 B. $V = w^3 + 4.5w^2 + w$
 C. $V = 6w^3 + 4.5w^2 + 11w$
 D. $V = 6w^3 + 2.5w$

6. Which of the following equations represents the data given below?

x	y
0	6
1	$9\frac{1}{3}$
2	$26\frac{2}{3}$
3	60
4	$111\frac{1}{3}$

- A. $y = 60x^3 + 26.67x^2 + 9.33x + 6$
 B. $y = 14x^3 + 16x^2 + 19x + 6$
 C. $y = 3.33x^3 + 17.33x^2 + 33.33x + 6$
 D. $y = 0.33x^3 + 6x^2 - 3x + 6$

7. For the data shown in the table below, what is the number that goes with the x^3 term?

x	0	1	2	3	4	5	6	7
$y = ax^3 + bx^2 + cx + d$	-200	-186	-144	-50	120	390	784	1326

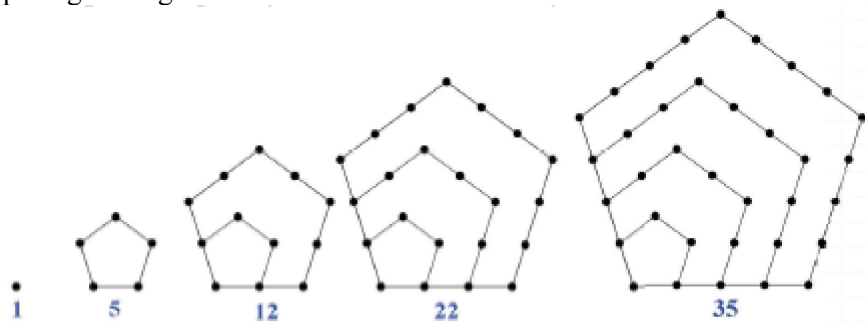
- A. 24
 B. 12
 C. 6
 D. 4

8. Which of the following equations represents the data given below?

x	0	1	2	3	4	5	6
y	-7	-2	13	38	73	118	173

- A. $y = 5x^2 - 7$
 B. $y = 5x^2 + 7$
 C. $y = x^2 - 7$
 D. $y = x^2 + 7$

9. In a sequence of pentagonal numbers, the n th figure consist of $\frac{3x^2 - x}{2}$ dots. How many dots make up the 9th pentagonal figure?



- A. 92
 B. 117
 C. 234
 D. 360

10. Determine the function that models the given data.

x	0	1	2	3	4	5	6
y	-7	-2	13	38	73	118	173

- A. $y = 11x$
 B. $y = 2x^2 + 5x + 4$
 C. $y = 17x - 6$
 D. $x^2 - 2x + 4$

Short Answer

11. Determine if the function represented is cubic, exponential, linear or quadratic, then write a function relating the variables.

x	y
0	-125
1	-121
2	-93
3	-17
4	131

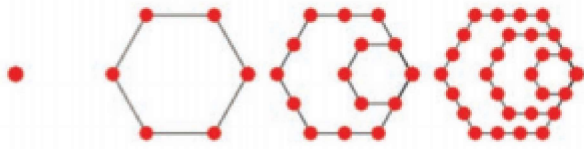
12. Determine if the function represented is cubic, exponential, linear or quadratic, then write a function relating the variables.

x	y
0	24
1	0
2	-16
3	-24
4	-24

13. Use finite differences to explain how you know that the function represented by the data in the given table is quadratic.

x	0	1	2	3	4	5
y	-17	-13	-3	13	35	63

Use the following situation to answer questions 14-16.



14. Determine the number of dots that would appear in the 5th figure.

FIGURE NUMBER, n	1	2	3	4	5	n
NUMBER OF DOTS, $D(n)$	1	6	15	28		

$+5$ $+9$ $+13$
 $+4$ $+4$

16. How many dots would appear in the 9th figure?

For problems 17-20, determine if the function is linear, quadratic, cubic, or exponential, then write a function equation relating the variables.

- 17.

x	y
1	11
2	22
3	37
4	56
5	79

15. Write a quadratic function to represent the relationship between n and $D(n)$.

Name: _____

ID: A

18.

x	y
0	-8
1	-6
2	8
3	46
4	120

20.

x	y
0	6
1	$9\frac{1}{3}$
2	$26\frac{2}{3}$
3	60
4	$111\frac{1}{3}$

19.

x	y
-2	19
-1	13
0	5
1	-5
2	-17