



## YOU TRY IT! #3

For the data set below, determine if the relationship is a cubic function. If so, write a function relating the variables.

$x$	$y$
0	-6
1	$\frac{1}{72}$
2	18
3	$28\frac{1}{2}$
4	42
5	$61\frac{1}{2}$
6	90



## PRACTICE/HOMEWORK

For each table below, determine whether the set of data represents a linear, exponential, quadratic, or cubic function.

1.

$x$	$f(x)$
-1	0.2
0	1
1	5
2	25
3	125
4	625

2.

$x$	$y$
0	-1.25
1	-1
2	-0.75
3	-0.5
4	-0.25
5	0

3.

$x$	$f(x)$
-1	-5
0	0
1	5
2	40
3	135
4	320

4.

$x$	$f(x)$
-1	-2
0	-8
1	-2
2	16
3	46
4	88

5.

$x$	$y$
-1	8
0	5
1	10
2	29
3	68
4	133

6.

$x$	$y$
1	40
2	38
3	36
4	34
5	32
6	30

7. Does the set of data shown below represent a cubic function? Justify your response.

$x$	$y$
0	0
1	-4
2	-28
3	-76
4	-148
5	-244

For questions 8 – 10, determine if the given relationship is a cubic function. If it is, write a function relating the variables.

8.

$x$	$y$
-1	8
0	5
1	6
2	11
3	20
4	33

9.

$x$	$f(x)$
0	0
1	0.5
2	4
3	13.5
4	32
5	62.5

10.

$x$	$y$
0	-7
1	-5
2	9
3	47
4	121
5	243

For questions 11 – 16, the data sets shown in the tables represent cubic functions. Write a cubic function for the values in the table.

11.

$x$	$y$
0	0
1	0.25
2	2
3	6.75
4	16
5	31.25

12.

$x$	$f(x)$
0	-5
1	-4.8
2	-3.4
3	0.4
4	7.8
5	20

13.

$x$	$y$
0	1
1	9
2	57
3	181
4	417
5	801

14.

$x$	$y$
0	0
1	-4
2	0
3	18
4	56
5	120

15.

$x$	$f(x)$
0	-1
1	0.3
2	7.4
3	25.1
4	58.2
5	111.5

16.

$x$	$y$
0	0
1	-27
2	-60
3	-63
4	0
5	165

Use the situation below to answer questions 17 – 18.



## GEOMETRY

The volume of a set of rectangular prisms with a base length of  $x$  inches, is shown below.

LENGTH OF BASE, $x$ (INCHES)	VOLUME, $v(x)$ (CUBIC INCHES)
0	0
1	1.5
2	12
3	40.5
4	96
5	187.5

- Write the cubic function relating the length of the base to the volume.
- Use your function to predict the length of the base of the prism when the volume is 1500 cubic inches.

Use the situation below to answer questions 19 – 20.



## FINANCE

A local mail service charges different rates, based on the weight of the package being mailed. A sample of their prices is shown in the table below.

WEIGHT OF PACKAGE, $w$ (POUNDS)	PRICE TO MAIL PACKAGE, $p$ (\$)
0	0
1	3.45
2	6.60
3	10.65
4	16.80
5	26.25

- Write a cubic function to represent the given data.

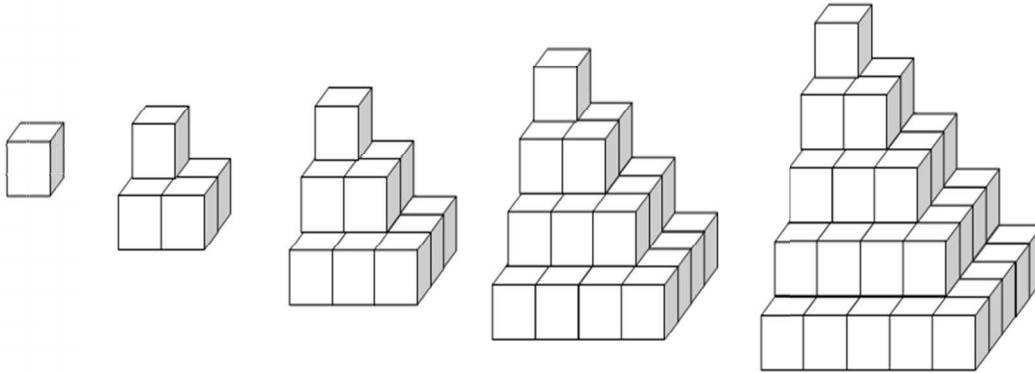
20. Use your cubic function to determine the cost to mail a 6-pound package.

Use the situation below to answer questions 21 – 23.



### CRITICAL THINKING

Blocks were stacked to create the pattern below.



21. Relate the number of layers in a stack,  $x$ , to the total number of blocks,  $y$ , by completing the table below. The first few rows have been completed for you.

NUMBER OF LAYERS, $x$	TOTAL NUMBER OF BLOCKS, $p$
0	0
1	1
2	5
3	14
4	
5	

22. Write the function relating the variables in problem 21.
23. If the pattern continues, how many blocks would it take to create a 7-layer stack?