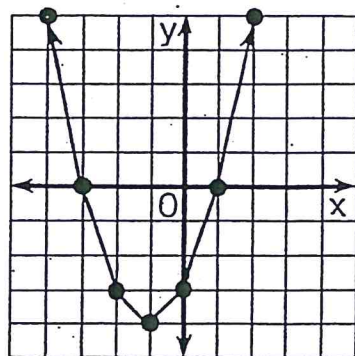


Name: _____

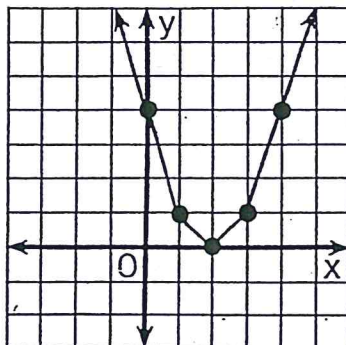
Per: _____

How Can You Help Control Soil Erosion?

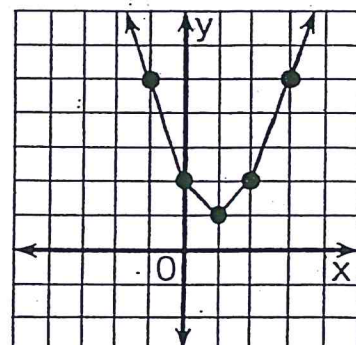
Use the related graph or the discriminant of each equation to determine how many real-number solutions it has. Circle the letter of the correct choice and write this letter in the box containing the exercise number.



- ① $x^2 + 2x - 3 = 0$
 (D) two solutions
 (E) one solution
 (M) no solutions



- ② $x^2 - 4x + 4 = 0$
 (C) two solutions
 (A) one solution
 (W) no solutions



- ③ $x^2 - 2x + 2 = 0$
 (H) two solutions
 (D) one solution
 (O) no solutions

	two solutions	one solution	no solutions
④ $x^2 + 5x + 4 = 0$	K	B	G
⑤ $x^2 - 3x = 2$	U	O	A
⑥ $y^2 + 10y + 25 = 0$	V	A	I
⑦ $2x^2 = 4x - 3$	F	C	H
⑧ $4x^2 + 9 = 12x$	S	P	N
⑨ $-3n^2 + 5n - 2 = 0$	N	R	S
⑩ $\frac{1}{2}x^2 + 3x + 8 = 0$	R	P	L
⑪ $\frac{1}{3}t^2 + 3 = 2t$	Y	B	T

7	3	10	1	5	8	2	11	6	9	4
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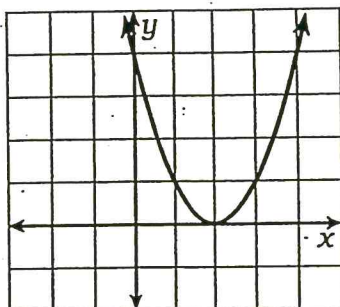
OBJECTIVE 4-f: To use the related graph or the discriminant of a equation to determine how many real-number solutions it has.

Where Do You Find Sculptures of Great Baseball Sluggers?

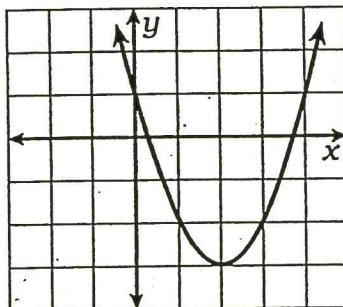
Find the number of real solutions. Circle the corresponding letter in the chart at the bottom of the page. When finished, write the circled letters in left-to-right order to answer the title question.

In Exercises 1-6, find the number of solutions for the equation given the graph of its related function.

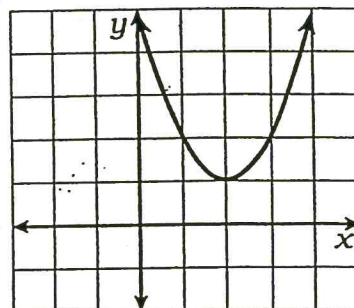
1 $x^2 - 4x + 4 = 0$



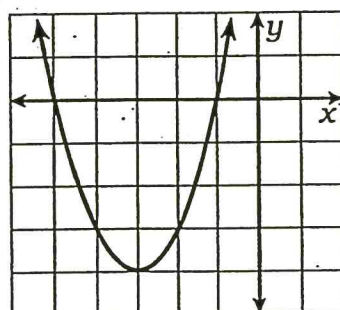
2 $x^2 - 4x + 1 = 0$



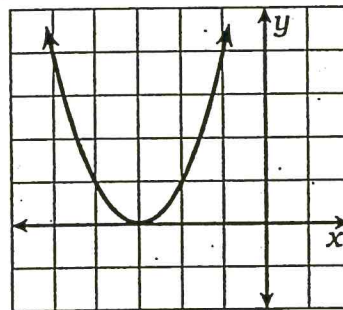
3 $x^2 - 4x + 5 = 0$



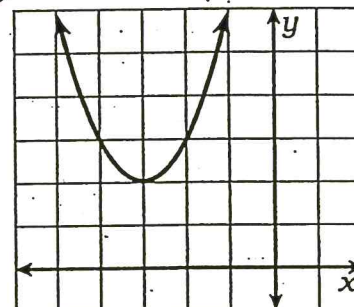
4 $x^2 + 6x + 5 = 0$



5 $x^2 + 6x + 9 = 0$



6 $x^2 + 6x + 11 = 0$



In Exercises 7-15, find the number of solutions for the equation using the discriminant.

7 $x^2 + 7x + 4 = 0$

8 $m^2 - 2m = 5$

9 $c^2 - 10c + 25 = 0$

10 $k^2 + 8 = 3k$

11 $3t^2 + 7t + 4 = 0$

12 $9n^2 + 6n + 1 = 0$

13 $-x^2 - 15x + 4 = 0$

14 $-2a^2 + 6a = 5$

15 $0.5p^2 = 4p - 8$

In Exercises 16-17, find the number of solutions in each situation. Use the vertical motion model below:

$h = -16t^2 + vt + c$, where h is the approximate height (in feet) of an object that is propelled upward, t is the time in motion (in seconds), v is the initial upward velocity (in feet per second), and c is the initial height (in feet).

- 16 Your friend launches a model rocket straight up from the ground with an initial velocity of 60 ft/s. You have a camera focused on a point 40 ft above the launch site. How many chances will you have to photograph the rocket?

- 17 Juliet was standing on a balcony with her arms outstretched 13 ft above the ground. Romeo, standing on the ground below, tosses a rose up to her. It leaves his hand 4 ft above the ground with a speed of 20 ft/s. How many chances will Juliet have to catch the rose?

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
two solutions	L	A	S	T	O	S	T	H	A	T	E	S	W	I	S	H	O
one solution	A	N	D	S	C	A	N	O	K	E	T	S	O	V	M	E	N
no solutions	H	I	U	N	T	S	H	O	M	E	N	D	R	U	N	M	M