

## Graphing Calculator ACTIVITY Use after Lesson 10.3

### 10.3 Find Minimum and Maximum Values and Zeros

#### QUESTION

How can you find the minimum or maximum value and the zeros of a quadratic function using a graphing calculator?

#### EXAMPLE 1

Find the maximum value of a function

Find the maximum value of the function  $y = -2x^2 - 6x + 7$ .

#### STEP 1 Enter the function

Press **Y=** and enter the function  
 $y = -2x^2 - 6x + 7$ .

```
Y1=-2X^2-6X+7
Y2=
Y3=
Y4=
Y5=
Y6=
Y7=
```

#### STEP 2 Adjust the window

Display the graph. Adjust the viewing window as needed so that the vertex of the parabola is visible.

```
WINDOW
Xmin=-6
Xmax=10
Xscl=1
Ymin=-20
Ymax=20
Yscl=2
```

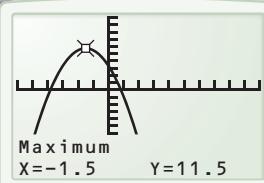
#### STEP 3 Use the maximum feature

The *maximum* feature is located under the CALCULATE menu.

```
CALCULATE
1:value
2:zero
3:minimum
4:maximum
5:intersect
6:dy/dx
```

#### STEP 4 Find the maximum value

Follow the graphing calculator's procedure to find the maximum of the function.



► The maximum value of the function  $y = -2x^2 - 6x + 7$  is 11.5.

#### PRACTICE

Find the maximum or minimum value of the function.

1.  $y = 3x^2 - 8x + 7$
2.  $y = -x^2 + 3x + 10$
3.  $y = -4x^2 - 6x - 6$
4.  $y = 5x^2 + 10x - 8$
5.  $y = -1.4x^2 + 3.8x - 6.1$
6.  $y = 2.57x^2 - 8.45x - 5.04$