

## Math 27 Finding the Relative Maximum Graphically

**Step 1)** Graph the function in the Standard Viewing Window.

**Step 2)** Adjust the window dimensions, [xMin,xMax] and [yMin,yMax], so that a relative maximum can be seen.

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**Step 3)**

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Press  $\boxed{2^{\text{nd}}}$   $\boxed{\text{CALC}}$

Select: maximum

Choose a relative maximum and use the left ( $\blacktriangleleft$ ) or right ( $\blacktriangleright$ ) arrow keys to move the trace bug so that it is to the left of the maximum.

Press  $\boxed{\text{ENTER}}$

Move the trace bug so that it is to the right of the maximum.

Press  $\boxed{\text{ENTER}}$

Press  $\boxed{\text{ENTER}}$  (again)

The coordinates of the relative maximum appear. The  $x$ -coordinate is the maximizer. The  $y$ -coordinate is the maximum function value.

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With the  $\boxed{\text{GRAPH}}$  menu bar showing

$\boxed{\text{Y=}}$   $\boxed{\text{WIND}}$   $\boxed{\text{ZOOM}}$   $\boxed{\text{TRACE}}$   $\boxed{\text{GRAPH}}$

press  $\boxed{\text{MORE}}$   $\boxed{\text{MATH}}$   $\boxed{\text{FMAX}}$

Choose a relative maximum and use the left ( $\blacktriangleleft$ ) or right ( $\blacktriangleright$ ) arrow keys to move the trace bug so that it is to the left of the maximum.

Press  $\boxed{\text{ENTER}}$

Move the trace bug so that it is to the right of the maximum.

Press  $\boxed{\text{ENTER}}$

Press  $\boxed{\text{ENTER}}$  (again)

The coordinates of the relative maximum appear. The  $x$ -coordinate is the maximizer. The  $y$ -coordinate is the maximum function value.

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Press  $\boxed{\text{F5}}$

Select: Maximum

Choose a relative maximum and use the left ( $\blacktriangleleft$ ) or right ( $\blacktriangleright$ ) arrow keys to move the trace bug so that it is to the left of the maximum.

Press  $\boxed{\text{ENTER}}$

Move the trace bug so that it is to the right of the maximum.

Press  $\boxed{\text{ENTER}}$

The coordinates of the relative maximum appear. The  $x$ -coordinate is the maximizer. The  $y$ -coordinate is the maximum function value.

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**Step 4)** Repeat **Step 3** for any other relative maximums.