Changing the Size and Scale of the Window Classic View

Objectives:

- Understand what scale means
- Adjust the x-axis size and scale
- Adjust the y-axis size and scale

Understand what scale means

Scale is the distance between tick marks on an axis.
The scale on the x-axis (Xscl) can be different from the scale on the y-axis (Yscl), if needed.
PRO TIP: The scale is often a personal choice. Choose so that you can see and use the graph!

Adjust the x-axis size and scale

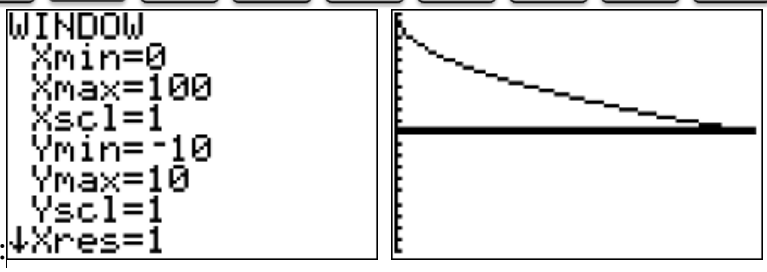
Example 1: Graph $y = 10 - \sqrt{x}$ for $0 \le x \le 100$ three times, with scale

a) Xscl=1,
b) Xscl=5, and
c) Xscl=10.

Enter the function and set the window to the standard window, press:

Change Xmin to 0 and Xmax to 100 to match the interval $0 \le x \le 100$, press:

See:

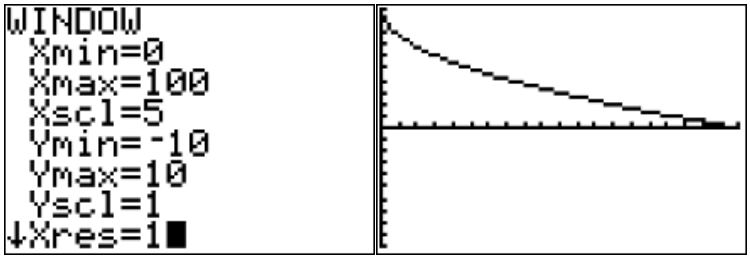


Notice: There are 100 tick marks on the x-axis, one unit apart. Using this scale, the x-axis is a blur, so we cannot identify x-values easily. ☹

Now change the distance between tick marks to 5 units, Xscl=5.

Press:

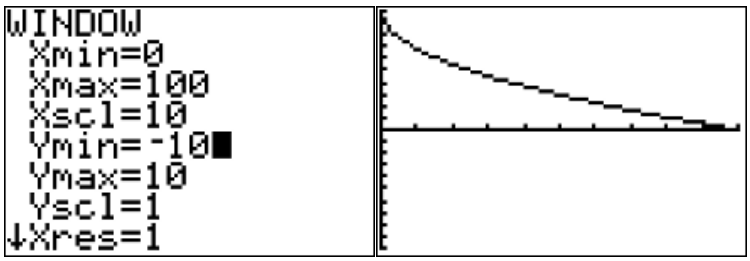
See:



Notice: There are 20 tick marks, five units apart. We could count by 5s by pointing with a pencil.

Now change the distance between tick marks to 10 units, Xscl=10.

Press: 

See: 

Notice: There are 10 tick marks, 10 units apart. We could count by 10s by pointing with a fingertip.

Adjust the y-axis size and scale

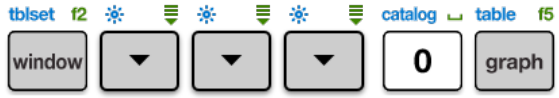
CAUTION: Example 2 follows Example 1! If you skipped it, please go back and do it now.

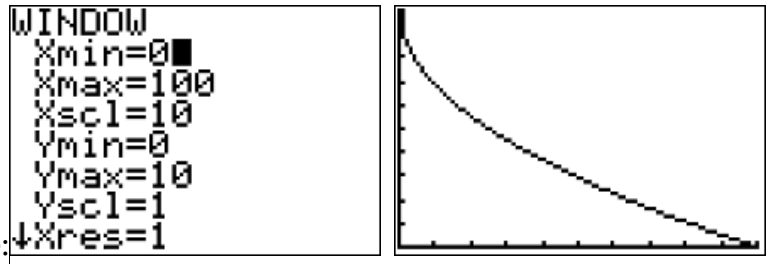
Example 2: Graph $y = 10 - \sqrt{x}$ for $0 \le x \le 100$ and $0 \le y \le 10$ twice, with scale

a) Yscl=1, and

b) Yscl=2.

Change Ymin to 0 to match the interval $0 \le y \le 10$, press:

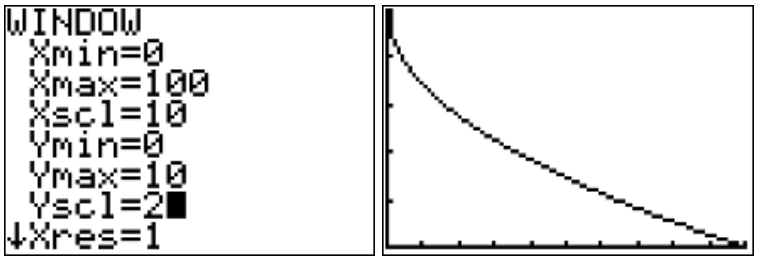
Press: 

See: 

IMPORTANT: Both axes have 10 tick marks, but they mean different distances!
On the x-axis, tick marks are 10 units apart, but on the y-axis, tick marks are 1 unit apart!

Now change the distance between tick marks to 2 units, Yscl=2.

Press: 

See: 

Try It!

Graph and adjust window as needed

1) $y = x^2 - 15$

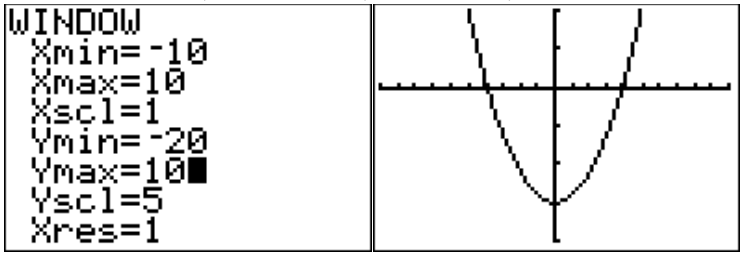
2) $y = |x - 14|$

Example Answers

PRO TIP: The scale is often a personal choice. The answers below are not the only useful values!

1) $y = x^2 - 15$ is a parabola with vertex at (0, -15).

Xmin = -10, **Xmax** = 10, **Xscl** = 1, **Ymin** = less than -15, **Ymax** = 10, **Yscl** = 2-5



2) $y = |x - 14|$ is a V-shape with x-int at (14,0). **Xmin** = close to but less than 0, **Xmax** = greater than 15, **Xscl** = 2, **Ymin** = -10 (or more), **Ymax** = 10 or less, **Yscl** = 1