

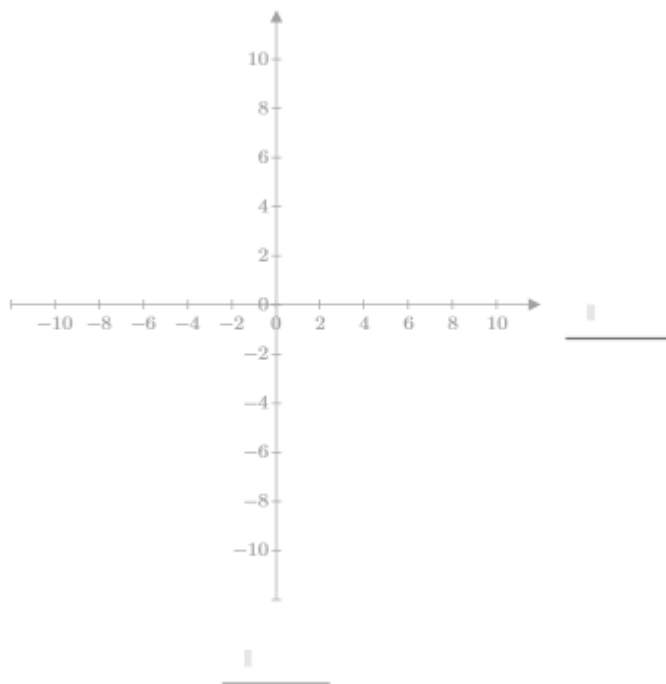
---

## Task 5–1: Creating a Plot with Multiple Traces

1. Define the function below. Insert the absolute value operator.

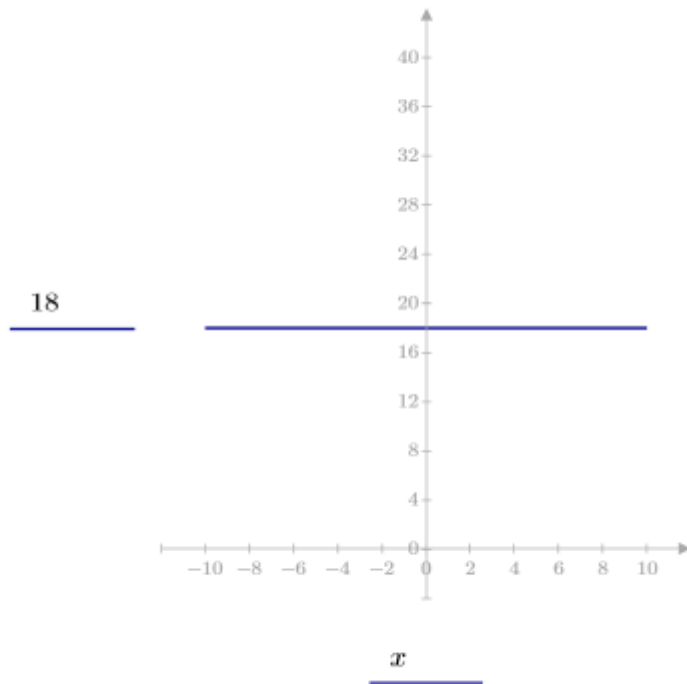
$$y(x) := 2|x| + \sin(x)$$

2. On the **Plots** tab, in the **Traces** group, click **Insert Plot**. An empty plot appears.

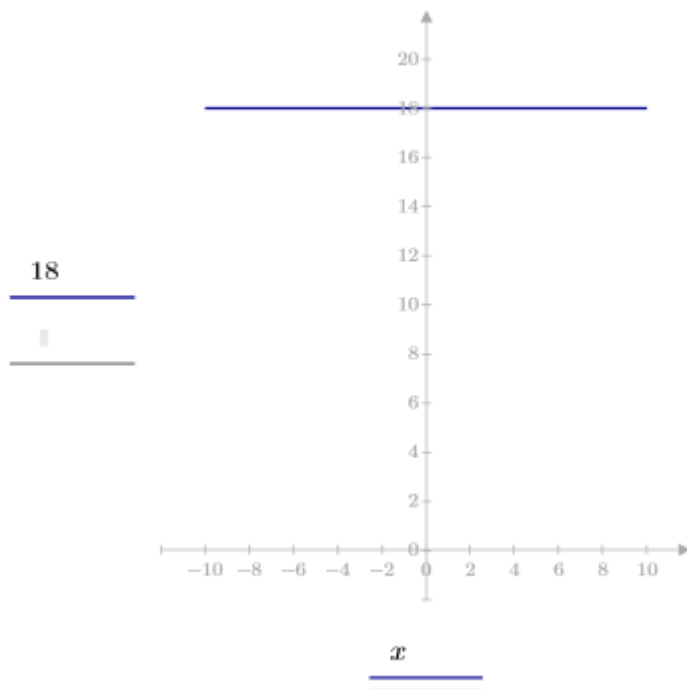


3. In the y-axis placeholder, to the right of the plot, type 18 and drag the y-axis legend to the left.
4. In the x-axis placeholder, to the bottom of the plot, type x. Press Enter or click outside the plot region. A line trace appears.

You can move from one placeholder to the next by pressing Tab or Shift+Tab. Ignore the unit placeholders for this task.



5. Place the cursor adjacent to the 8 in 18. Click **Add Trace**. A new y-axis placeholder appears below the current one.

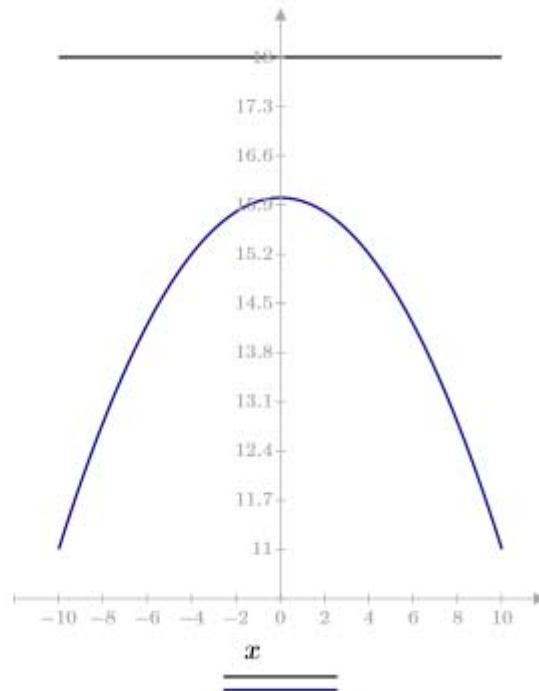


**Note**

*When you place the cursor to the leftmost insertion point of an axis expression, and then you add an axis expression, the axis placeholder appears above the current one.*

6. Type  $16-0.05x^2$  in the y-axis placeholder. Press Enter. A second trace appears.

$$\frac{18}{16 - 0.05 x^2}$$

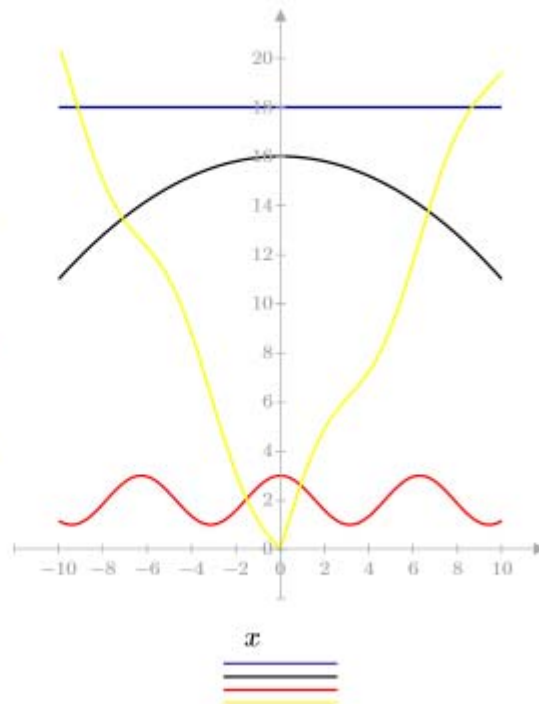


7. Insert two y-axis placeholders and type the following y-axis expressions.

$$\frac{18}{16 - 0.05 x^2}$$

$$2 + \cos(x)$$

$$y(x)$$



- The axis expressions can contain built-in or user-defined functions.
- The y-axis expressions must have the same independent variable as the x-axis expressions. Here, the independent variable is  $x$ .
- You can use one axis-expression to define more than one trace, such as the x-axis expression for this plot.