

3.6 Function Notation

Function Notation – A written equation that shows a relationship.

Eg. A student sells created CD's for \$7.00

The equation could be $f(x) = \$7x$

where $f(x)$ = sales total and x = number of CD's sold. ..

If the student sold 5 CD's $f(5) = \$7 * 5$ therefore $f(5) = \$35$

Solve for $f(1)$

$$f(6) = 42$$

$f(12)$

$$f(1203) = 8421$$

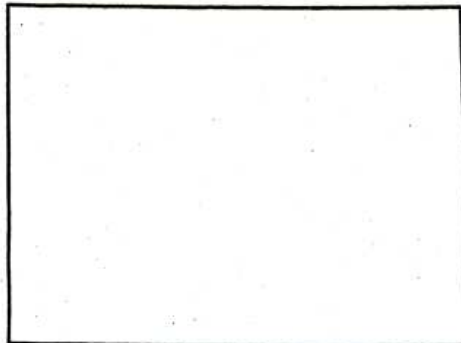
you can also put this into a chart.

x	f(x)
7×7	49
14×7	98
32×7	224
756	5292

Note that $f(x)$ is the same as y . So you can graph this relationship $y=7x$

Domain = 0 - 100

Range = 0 - 700



Is this a function? Explain.

You can also identify how many CD's sold by knowing the total sales.

Eg. If the student made \$70 then she must have sold 10 CD's

Therefore $f(10) = 70$

$$f(x) = 7x$$

$$7 = 7x$$

Solve for x if $f(x) = 7$

* $y = 7$

$x = 1$

$$f(x) = 182$$

$$x = 26$$

$$f(x) = 56$$

$$56 = 7x$$

$$x = 8$$

$$f(x) = 686$$

$$x = 98$$

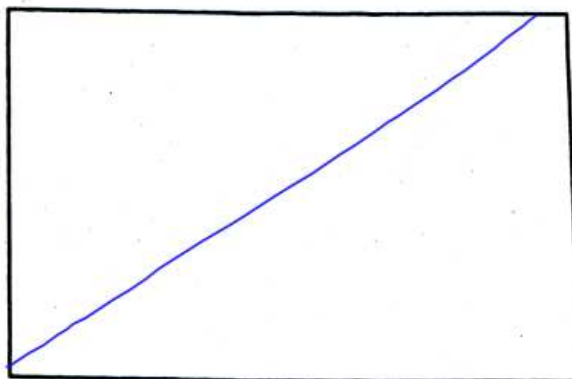
We can use these numbers to plot a graph in L_1 and L_2 .
Choose a line graph in your stat plot.

x	f(x)
1	7
26	182
8	56
98	686

The graph would look like the following

Domain = 0 - 100

Range = 0 - 700



How does this graph compare with the graph on the previous page?

Using the trace function can help you identify cost and CD's sold.

Total sales = \$7.00 x number of CD's sold

Y = total sales x = number of CD's sold

Graph the equation ($Y = 7x$). Domain = 0 - 100 Range = 0 - 700

If you sold ^(x) 25 CDs and want to know the total sales

1. press TRACE → 25 → Enter
2. $y=175$ therefore your total sales = \$175

If you made ^(y) \$469 and wanted to know how many CD's were sold

1. press the Y= key
2. type the 469 in $Y_2=$
3. press the graph key
4. press 2nd TRACE (calc) then 5:intersect
5. press enter three times and $x=67$ therefore you sold 67 CD's

Complete the following.

If you sold _____ CD's your total sales would be _____.

25	<u>175</u>
82	<u>574</u>
99	<u>693</u>

If your total sales were _____ you sold _____ CD's.

434	<u>62</u>
126	<u>18</u>
308	<u>44</u>

The equation $C(F) = 5/9(F-32)$ represents the conversion of degrees Fahrenheit to degrees Celsius. Celsius = $5/9$ (Fahrenheit - 32)

$$y = \frac{5}{9}(x - 32)$$

Eg $50^{\circ}\text{F} = \underline{\hspace{2cm}}^{\circ}\text{C}$

$$C(50) = 5/9(50-32) = 10^{\circ}\text{C}$$

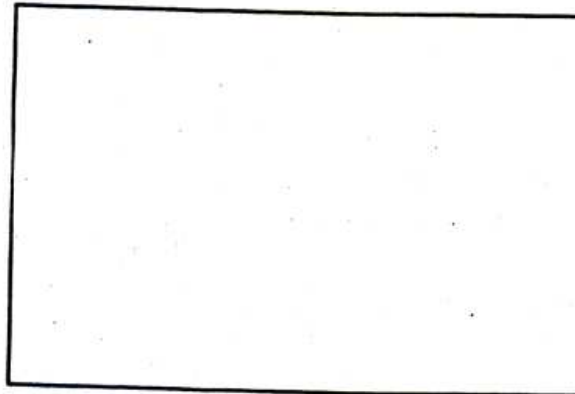
Therefore

$$C(50) = 10$$

We can put this equation into your graphing calculator $f(x) = 5/9(x-32)$.

Domain = -100 to 1000

Range -100 to 600



To find the $^{\circ}\text{C}$ from any given $^{\circ}\text{F}$ you can use your TRACE button and type in the value in the X=

Eg 52°F equals 11.1°C

-10°F equals -23°C

82°F equals $\underline{27.8^{\circ}\text{C}}$

212°F equals $\underline{100^{\circ}\text{C}}$

-40°F equals $\underline{-40^{\circ}\text{C}}$

900°F equals $\underline{482.2^{\circ}\text{C}}$

To convert from °C to °F it is a bit more complicated.

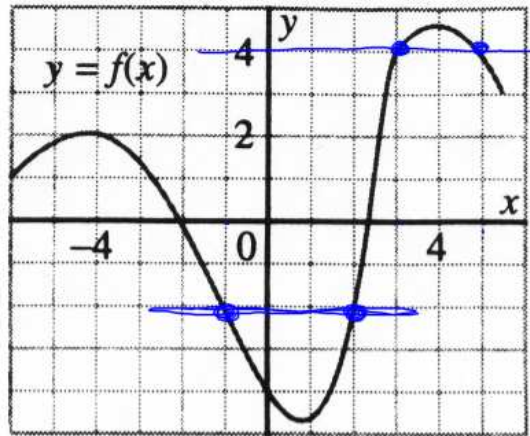
6. press the Y= key
7. type the Celsius temperature in Y₂=
8. press the graph key
9. press 2nd TRACE (calc) then 5:intersect
10. press enter three times and the x value is the conversion

eg $100^{\circ}\text{C} = 212^{\circ}\text{F}$

Complete the following.

1. Water freezes at 0°C , what is that in $^{\circ}\text{F}$?
 32°F
2. It is getting cold when the temperature is -20°C , what is that in $^{\circ}\text{F}$?
 -4°F
3. A thermometer reads 65°C , what is that in $^{\circ}\text{F}$?
 149°F
4. A recipe calls for the oven 200°C , what is that in $^{\circ}\text{F}$?
 392°F
5. A chef bakes a pie at 450°F , what is that in $^{\circ}\text{C}$?
 232.2°C
6. A boiler has a maximum temperature of 500°C , what is that in $^{\circ}\text{F}$?
 932°F
7. Another boiler has a maximum temperature of 800°F , what is that in $^{\circ}\text{C}$?
8. Today's temperature is _____ $^{\circ}\text{C}$, what is that in $^{\circ}\text{F}$?

Use the following graph to evaluate the following:



$$f(-4) = 2$$

$$f(3) = 4$$

$$f(-1) = -2$$

$$f(x) = -2$$

$$-1, 2$$

$$f(x) = 4$$

$$3, 5$$

Use the following table to evaluate the following

Time (x)	2	8	12
Distance (y)	15	38	61

$$f(8) = 38$$

$$f(x) = 61$$

$$7$$

$$(12)$$