**TRANSFORMATIONS-Translations Investigations**

Graph the base function and then each related function using Desmos. Use a different colour to help distinguish each function.

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| **Recall:** If a number is added to or subtracted from a function, what happens? f(x) = x2  $y=\sqrt{x}$ $y=-\sqrt{x}$  |
|  g(x) = x2 + 3  h(x) = x2 - 5$y=\sqrt{x}$ $y=\sqrt{-x}$ $y=\sqrt{x+2}$ $y=\sqrt{x-5}$    |  $ y=\sqrt{x} -4$ $ y=\sqrt{x}+3$ **Recall:** If a number is added to or subtracted from *x*, what happens?For example, what transformations are applied to the graph of y = x2 to get y = (x - 2)2  |





**SUMMARY**

f(x) + c moves the graph of f(x) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

f(x - d) moves the graph of f(x) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
f(-x) makes the graph of f(x) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
-f(x) makes the graph of f(x) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **TRANSFORMATIONS-Stretches & Compressions Investigations**

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| **Recall:** If a function is multiplied by a value, what happens or x multiplied by a value? $y=x^{2}$ y = x2 $y=2x^{2}$ y = (2x)2 $y= 0.5x^{2}$ y = (0.5x)2 |
|  Look at the graphs of y = 2x2 and y = (2x)2. Why are they not the same? How could you describe the difference?Describe the difference in the graphs above. Use the words horizontal & vertical along with stretch & compressed for each set of graphs.   |    |

# Combining Translations, and Stretches

1. f(x) = 2+ 1 is a translation of g(x) = .

Sketch the base function 1st, then apply

the vertical stretch, and then …

Describe the translations

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