GSE Algebra 1 **7.6 – linear shifts** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

A line is going to shift very similar to a quadratic.

Let’s look at what we have.

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| $$y=x$$***PARENT GRAPH***x-int: y-int:   | $$y=x+3$$How do we move? x-int: y-int:   |
| $$y=(x-1)$$How do we move? x-int: y-int:  | $$y=x-5$$How do we move? x-int: y-int:  |
| $$y=2x$$How do we move? x-int: y-int:  | $$y=-x$$How do we move? x-int: y-int:  |
| $$y=\frac{1}{3}\left(x+3\right)-1$$How do we move? x-int: y-int:  | $$y=-4x+4$$How do we move? x-int: y-int:  |

Compare linear to quadratics. How are these similar? How are they different?

$$y=\frac{1}{2}\left(x+3\right) y=\frac{1}{2}(x+3)^{2}$$

$$y=-x-3 y=-x^{2}-3$$

$$y=5\left(x+4\right)+2 y=5(x+4)^{2}+2$$

$$y=\left(x-19\right) y=(x-19)^{2}$$

What happens to a line when there is a number higher than 1 for a slope?

What happens to a line when there is a number lower than 1 for a slope?

Write the equations for the following specific scenarios.

1. A quadratic that has been shifted 1 unit to the right and 5 units down.
2. A line that has been reflected and moved up 6 units.
3. A line that has been vertically stretched by a factor of 4 and moved left 4 units.
4. A quadratic that has been reflected over the x-axis, vertically shrunk by ¼ and moved down 6 units.
5. A quadratic that has been moved 4 units left and 9 units up.
6. A line that has been translated 6 units right and 3 units down.
7. A quadratic that has been vertically stretched by a factor of 7 and moved 3 units right.
8. A line that has been horizontally stretched by $\frac{2}{3}$.
9. A line that has been reflected, vertically stretched by a factor of 7 and down 9 units.