Name:

Date:

School:

Facilitator:

1.07 Absolute Value Functions (37 Points)

This task requires you to create a graph. You have several options:

* Use the word tools;
* Draw the graph by hand, then photograph or scan your graph; or
* Use the GeoGebra linked on the Task page of the lesson to create the graph, then insert a screenshot of the graph into this task.

**Determine the vertex of each absolute value function, state whether the vertex is a maximum or minimum point, determine the opening of the graph, graph each function, and describe the translation.**

1. *f*(*x*) = |*x*| – 4

 Vertex:       Maximum or minimum?:

 Opens:

 ****

 Describe the translation:

1. *f*(*x*) = –|*x* – 5| + 3

 Vertex:       Maximum or minimum?:

 Opens:

****

 Describe the translation:

1. *f*(*x*) = |*x* + 2| – 3

 Vertex:       Maximum or minimum?:

 Opens:

****

 Describe the translation:

1. *f*(*x*) = –|*x* – 2| – 3

 Vertex:       Maximum or minimum?:

 Opens:

****

 Describe the translation:

1. When comparing the graph of g(x) and the equation of f(x), which function has a larger maximum? Explain why.

  g(x)

1. If and the graph of h(x) translates right 3 and up 2, which function has a smaller minimum? Explain why.

1. Rewrite as a piecewise function.

**Use the GeoGebra linked on the task page to solve the next three problems.**

1. **Solve |2*x*** – **6| = |4*x*+4|**

 **Answer:**

 **Copy and paste a picture of your graph below:**

1. |3*x*+6| = |–9*x* – 12|

 **Answer:**

 **Copy and paste a picture of your graph below:**

1. The cost of shipping a 25-lb. box with UPS is $25.50. If the weight, *w,* of the box may vary by no more than 3 pounds, what is the range of weights of a box that ships for $25.50?

 **Equation:**

 **Answer:**

 **Copy and paste a picture of your graph below:**