**Linear Equations Quiz Answer Key**

1. Determine and write the linear equation for a line that will safely pass through the gates below.
Draw the line.



**Since this question has no exact answer, use the following to check students’ answers:**

* **Plug in X=-6 into the student’s equation; if the resulting Y is greater than 3 and less than 4 (3 < y < 4), then the student has passed the first gate.**
* **Plug in X=1 into the student’s equation; if the resulting Y is greater than 2 and less than 3 ( 2 < y < 3), then the student has passed the second gate.**
* **Both of these conditions must be true, in order to pass both gates.**
* **An example correct equation: *y* =** $-\frac{1}{7}x+ \frac{37}{14}$
1. What benefits does modeling in engineering provide?

**Answers will vary. Example answers:**

* **Modeling allows engineers to foresee problems before they happen in real life.**
* **Modeling allows engineers to plan the most-effective routes, which can save the waste of supplies such as food, time and fuel.**
* **Modeling provides a method of testing something before it is used in the real world, reducing the threat to human life and property.**
* **Modeling allows engineers to use forensic techniques to see what went wrong.**