Linear Equations Quiz Answer Key
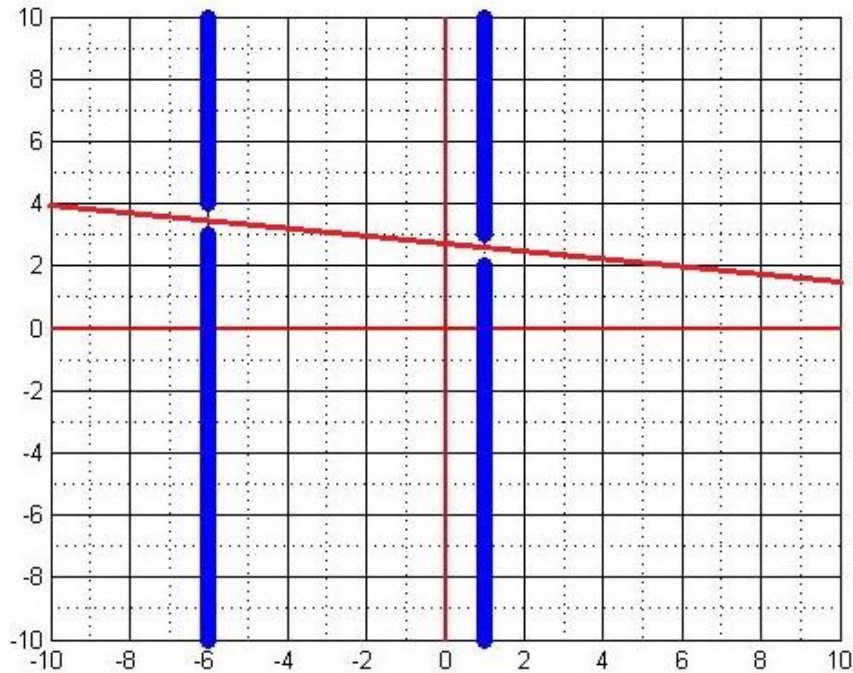
1. Determine and write the linear equation for a line that will safely pass through the gates below. Draw the line.

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:** $y = -\dfrac{1}{7}x + \dfrac{37}{14}$

2. 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.**