Name (Last, First): _____   Student ID: _____

Quiz 2 on January 21, 2016: "Draw a Figure". You have 25 minutes to solve as much as you can of the problems below. Please write on both sides of the page.   **Good Luck!**

Problem 1 (Larson's problem 1.2.7, reworded). A wing-less bug that can walk on floors, walls, and ceilings, is in box-shaped room of width 12m, height 12m, and length 30m. Initially it is positioned at a point on the square wall at the front of the room, half way between the two side walls and 1m below the ceiling. Can it reach a point on the opposite square wall, half way between the two side walls and 1m above the floor, while walking no more than 40m?

```
In[1]:= Graphics3D[{
    Red, Ball[{0, 6, 11}, 1/3], Ball[{30, 6, 1}, 1/3],
    Opacity[0], Cuboid[{0, 0, 0}, {30, 12, 12}]
    }, Boxed → False, ViewPoint → {-1.40097, -3.01532, 0.628599},
    ViewVertical → {-0.141263, -1.05105, 2.30127}]

Out[1]=
```

Problem 2 (Larson's problem 1.2.9). Let $0 < a < b$ be real numbers. If two points are selected at random from a straight line segment of length b, what is the probability that the distance between them is at least a?

Problem 3 (no credit). Use the back of this quiz to draw a figure of something interesting. The best figures will be placed somewhere on this class' web site.