Note: For the first two problems, you will need print-outs of two paintings. Rather than photocopy pictures of them for you, which really doesn't work at all well, I have put on my website for this course links to various websites that have these pictures. For each of the two paintings, click on the links on my webpage, and then print out the picture. (There's no need for the print-outs to be in color, although you may just enjoy the process more.) Hand in the print-outs with your work, of course, as this is where most of your work for these problems will be.

Remember: my website for the course is
`http://acunix.wheatonma.edu/jsklensk/Art_Spring07/art.html`

(In the interests of complete attribution, the websites I am linking to for these pictures are:
`http://www.econ.barnard.columbia.edu/~polisci/faculty/athens.html`,
and
`http://pavlov.psyc.queensu.ca/~psyc382/mastrin.html`)

1. The two pictures we will be considering are:

   (a) Rafael's *School of Athens* (1509-1511).

   (b) The painting that motivated our looking into finding the correct viewing position: Masaccio's *Trinity* (1427).

   For each of these paintings, do the following:

   (i) Locate the primary vanishing point. *Don't draw too many lines on the picture, because you're going to need to draw several more for the next part, but draw enough to show the vanishing point.*
   - Is it in the picture or off the picture?
   - Is it used to draw the eye anywhere important, or is it just used to give an illusion of depth?

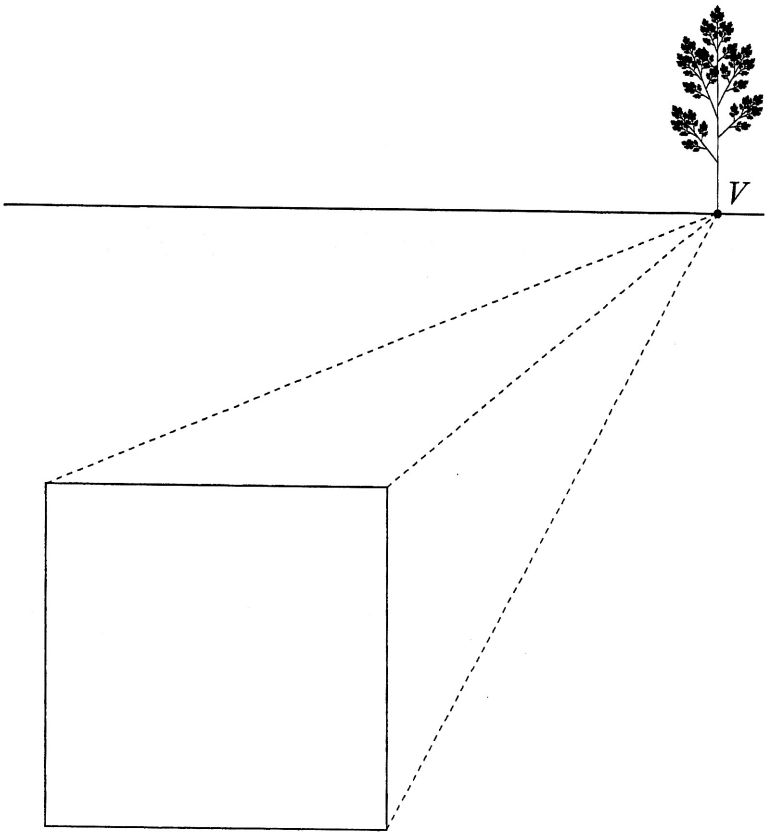
   (ii) Determine the correct viewing position for your copy, and describe it. Try viewing it from the correct viewing position. Does it improve the illusion of depth in the picture? (Of course, with a print-out it's not the same experience as looking at it in person.)

   Note: For the last picture, *Trinity*, finding a square takes a bit more work. Try looking at the top of the columns. You will have to finish off the squares for yourself, using the vanishing point.

2. *Drawing your own cube:* (This is Exercise 1 from Lesson 3 in *Lessons in Mathematics and Art.*)

   In the figure below, a start has been made on the drawing of a cube in one-point perspective. The front face is a square, V is the vanishing point, and the dashed lines are guidelines for drawing receding edges of the cube. Suppose you want to choose the viewing distance *first*, and you choose it to be 6 inches. Finish drawing the cube.

   Hint: For help in thinking about it, look at Figure 7 from Lesson 3. The idea is to, in a sense, work backwards.

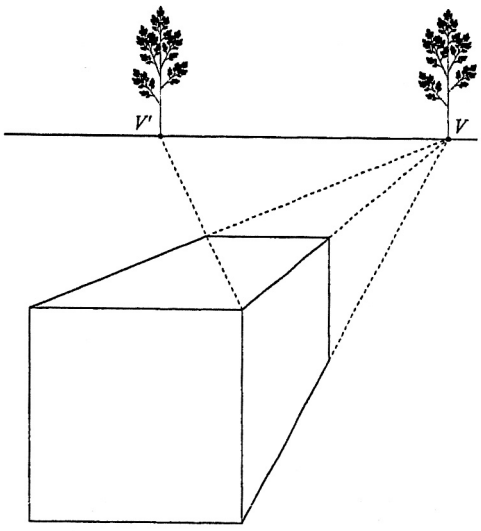


3. (This is Exercise 2 from Lesson 3 in *Lessons in Mathematics and Art.*)

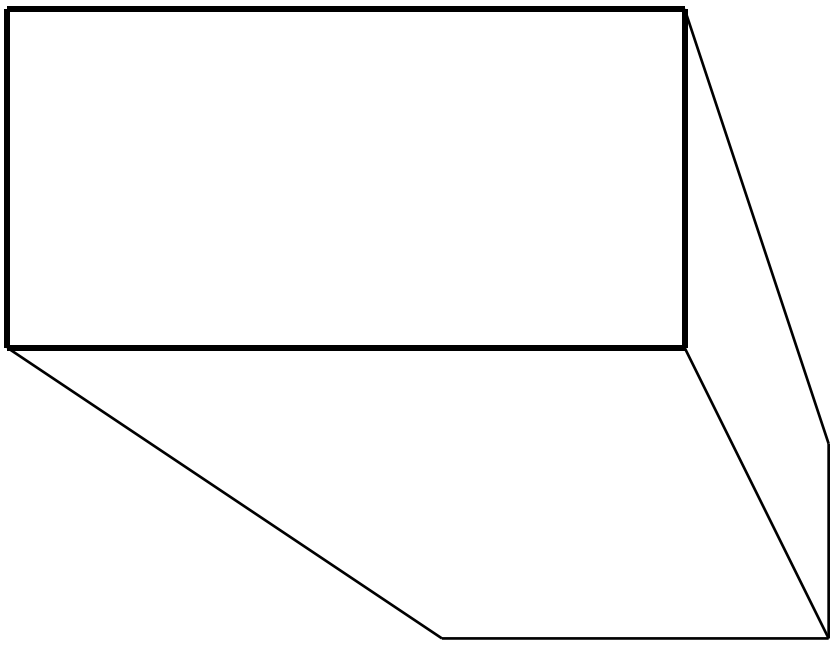
   If the box below represents a cube, then we can use our usual techniques to find the correct viewing distance, and it would be the distance between the two trees.

But suppose the box below is *not* a cube – suppose its front is a square, but its top face is in reality twice as long as it is wide from left to right. In this case, the viewing distance is *not* equal to the distance between the two trees. What *is* the viewing distance? (You may give your answer in terms of the distance between the trees, if that's easier.)

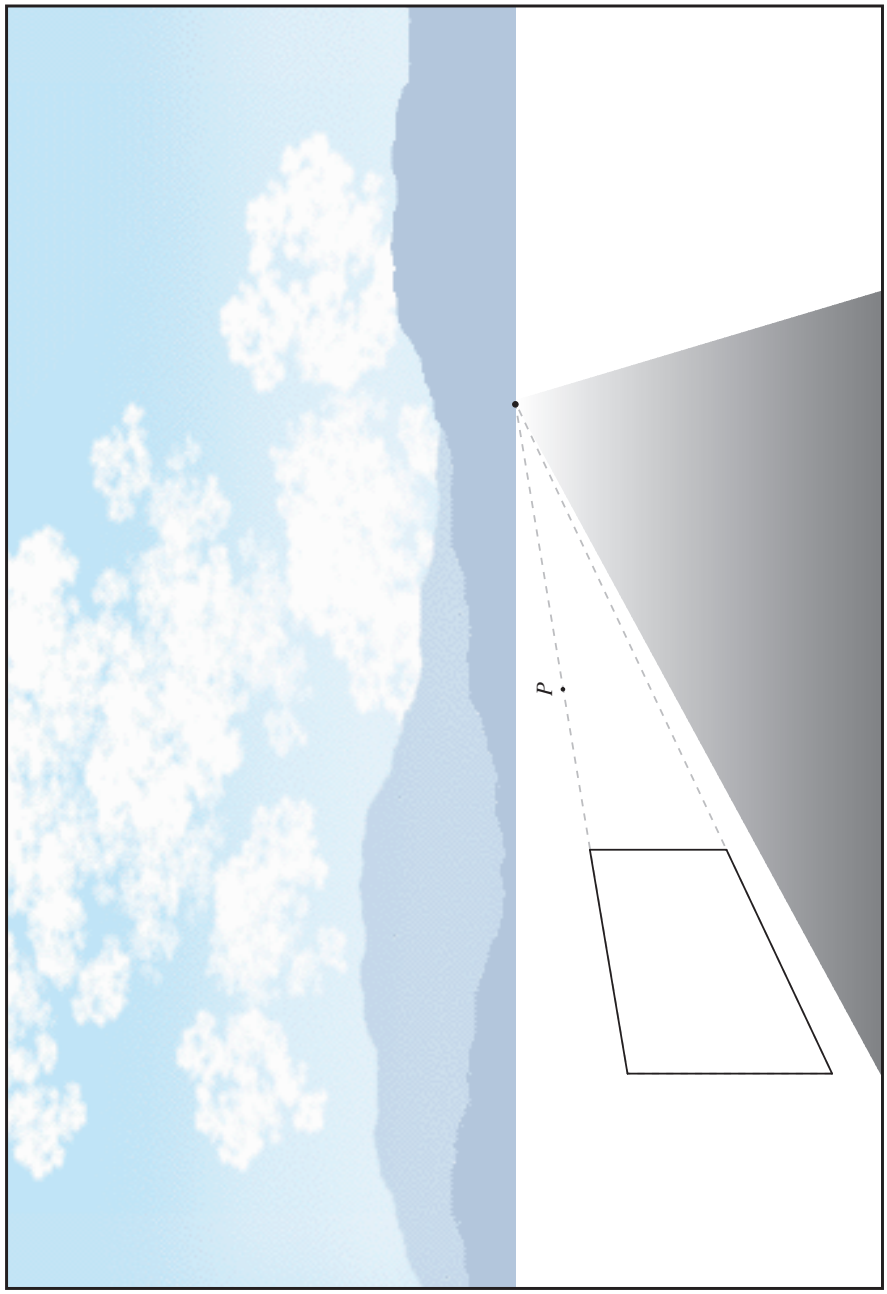
Hint: Go through the same process we went through in class, and Frantz goes through in *Lesson 3*, to find the viewing distance with a cube, but make appropriate adjustments.



4. On the perspective drawing of a box-shaped package on the next page, draw string or ribbon wrapped decoratively around the box, so that each side is divided with 1/4 on one side of the string and 3/4 is on the other. Show your work lightly in pencil, and do the final result more darkly.



5. (This is Exercise 1 from Lesson 4 in *Lessons in Mathematics and Art.*) Within the solid outline of the fence on the next page, draw 7 vertical fenceposts to create a fence with 8 equal sections. (If you would like a color version of this, you can get it from the same website you found the links to the first two paintings).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