

## I. MORE PERSPECTIVE TECHNIQUES:

**Each** problem in this section should be done on a separate copy of the drawing of a section of a roadside fence (linked to below the problem set)

1. Subdivide the section of fence that you are shown into 8 equal sections by adding 7 vertical fenceposts inside the solid outline of the fence.

That is, within the solid outline of the fence section that you are given, draw 7 vertical fenceposts spaced so as to create the perspective image of a fence that **in real-life** would have 8 equal smaller sections.

Be sure to make it clear what the steps in your process are.

2. (On a separate printout of the fence), extend the given section of fence into the distance by drawing three exact perspective duplicates of the original rectangular section, each attached to the far side of the previous. Show the process you are using to ensure that all four sections of the fence are (or would be, in 3D) equal in size.
3. (On yet another printout of the fence), and again treating the given solid outline as one section of fence, draw a copy that is a duplicate of the original –with the top of its *nearest* fencepost occurring at the point  $P$ . (In other words, there should be a space between the two sections of fence).

Explain (mathematically) why this technique works.

**Important:** It is just a coincidence that  $P$  is close to where a diagonal through the midpoint of the side hits;  $P$  could be *anywhere* along the top rail. The idea here is to find a technique that allows us to draw an exact copy of a rectangle with **any-sized** space in between the two, by choosing where to put the nearer edge of the rectangle.

4. Draw a duplicate of the section of fence (in the same plane as the original), this time with the top of its *far* fencepost at the point  $P$ .

Explain (mathematically) why this technique works.

**Note:** Again, assume that there is nothing special about where  $P$  is, it could be anywhere on the extension of the top fence rail. Your new rectangle may or may not overlap with the original section of fence. Being able to draw two overlapping identical rectangles in perspective comes in handy when drawing such things as a partially open sliding glass door or window, for instance.

5. Draw 2 vertical fenceposts to divide the fence into 3 equal sections. (This may seem easy at first, but 3 equal sections is much different from 2, 4, 8, 16 etc.)

Explain (mathematically) why this technique works.

## II. ANAMORPHIC ART:

Using the two links to grids that accompany this assignment, print out the drawing you're going to convert to anamorphic art (a primitive flower), which is already placed on a perspective grid for you, as well as the straight-on grid you're going to draw the anamorphic version of the flower on.

1. We begin with an undistorted flower that is super-imposed on a grid that is drawn in perspective. Describe exactly where you should place your eye so that the perspective grid that the flower sits on looks like a square grid. Include where (opposite what point) of the perspective image your eye should be positioned, as well as how far back it should be.

**Note:** This is a perspective question, and uses only pre-anamorphic art ideas. It has nothing to do with the flower, and only relates to the perspective grid itself. If you orient the paper so that the actual parallel lines are horizontal, then you will use a horizon line to do this; if you orient it so that the actual parallel lines are vertical, you will use a "verizon" line. Either way, of course, you're using the same line.)

**Also note:** This is **not** the same as finding where the person who is looking at your final anamorphic version of the flower should view from so that the image they see looks like the original undistorted version.

2. Transfer the drawing of the flower that I provided, which is the drawing as you'd like it to appear to the viewer when viewed from an extreme point of view, to the straight-on grid to create the anamorphic drawing.

### CONCEPTS TO TAKE INTO ACCOUNT:

- Make sure you've oriented the two grids the same way: the portion I have labeled "top" should be on top on both grids.
- Recall that intersection points on the two grids correspond exactly, so places where the flower crosses such an intersection point are the most reliable transfer points.
- Also recall that proportion is preserved on the lines that are still parallel on the perspective grid. For instance, halfway along such a side of a square on the perspective grid corresponds to halfway along the corresponding side of the

corresponding square on the straight-on grid. Thus places where the drawing crosses one of these still-parallel lines are fairly reliable transfer points.

- Proportion is *not* preserved on the lines that are *not* parallel on the perspective grid. Halfway back along a square on the perspective grid corresponds to less than halfway along on the straight-on grid. Places where the drawing crosses one of *these* lines are not reliable transfer points and should be avoided if possible.

If you want to color your completed anamorphic art, please do!

3. Now that you have completed an anamorphic work of art, how should it be positioned, and roughly where should a viewer position their eye, for your distorted flower to *appear* undistorted? That is, should the drawing be vertical on a wall, or horizontal on a table? Should the viewer look directly at the drawing (so that their line of sight is perpendicular to the drawing)? Or should they stand to the right of, left of, above, or below the drawing ... or should their eye be level with an edge of the painting? Should they position themselves so that their eye is closest to the right edge, left, edge, top edge or bottom edge?