6. (12 points) A telephone installation crew must run a line underground between two junction boxes. Unfortunately, there is a 36 feet wide paved road between the two boxes, and one box is 100 feet down that lane from the other (see figure). It costs $30 per foot to cut and repair the paved road, but only $24 per foot to dig and refill along the side of the road. The crew will cut and repair the road to a point $x$ feet from the point directly across from the first junction box, and then dig along the road the rest of the way. Determine the number of feet, $x$, from the point directly across from the first junction box which will minimize the cost of the installation.