

TRANSFORMATIONS

PROBLEM 4: ELLIPSE PLACEMENT

Suppose you were drawing a picture on your graphing calculator and needed an ellipse as part of the figure. Using the SET UP under the “Conics” menu, turn the Grid, Axes, and Label Off. Then, set the window so that the domain is $[-12, 12]$ and the range is $[-8, 8]$. Use a scale of 0 on both. After selecting the appropriate type of equation for the ellipse, draw an ellipse with $A = 4$, $B = 3$, $H = 0$, and $K = 0$. Assume you now need to adjust the ellipse for your picture.

- A. You decide to move the center of the ellipse from the middle of the screen to the right half of the screen. What do you do?
- B. You determine that the center should now be about $\frac{3}{4}$ of the way from the top of the screen to the bottom of the screen. What do you do?
- C. You now decide that the horizontal axis of the ellipse should be one-and-a-half times as long as you originally thought. What do you do?
- D. You also determine that the vertical axis of the ellipse should be only two-thirds as long as you originally thought. What do you do?

If you like, you can store your ellipse and use it as part of a bigger picture. When it is drawn, press $\boxed{\text{OPTN}}$, $\boxed{\text{F1}}$ for PICT, $\boxed{\text{F1}}$ to store it, and the function key of the picture memory location you want to use. You can then choose this picture as the background from the SET UP menu.