12.6, number 6: **Which picture from (a)–(l) corresponds to**

$$x = -y^2 - z^2?$$

Answer:

When $x = 0$, the equation describes one point in the yz-plane.

When $y = 0$, the equation describes a parabola in the xz-plane. This parabola has x always negative.

When $z = 0$, the equation describes a parabola in the xy-plane. This parabola has x always negative.

The graph is a paraboloid. The answer is either e or f. Observe that the graph e has has the x-coordinate always negative; just like the equation says it should.

The answer is $\boxed{e}$.