

$$6. f(x, y) = xy - ax$$

$$f_x = y - a \quad f_y = x \quad f_{xx} = 0 \quad f_{yy} = 0 \quad f_{xy} = 1$$

$$y - a = 0$$

$$x = 0$$

$$d = f_{xx}f_{yy} - f_{xy}^2$$

$$y = a$$

$$x = 0$$

$$d = 0(0) - 1^2$$

$$d = -1$$

SADDLE POINT  $(0, a, 0)$

$$7. f(x, y) = e^x \cos y$$

$$f_x = e^x \cos y \quad f_y = -e^x \sin y$$

$$e^x \cos y = 0$$

$$-e^x \sin y = 0$$

$$e^x = 0$$

$$\cos y = 0$$

$$-e^x = 0 \quad \sin y = 0$$

$$\cancel{LNE^x = LNO}$$

NO CRITICAL POINT  
NO REL EXTREMA