Please show **all** your work! Answers without supporting work will not be given credit. Write answers in spaces provided.

Name:_____

1. [**5 pts**] Find the discriminant of
$$f(x, y) = e^x \cos(y)$$
Simplify your answer. Note: $\sin^2(y) + \cos^2(y) = 1$.

$$D(x, y) = \ \text{\underline{\hspace{4cm}}}$$

2. [**5 pts**] Given the information in the table below, find and classify any critical points for the function $g(x, y)$.

(x_0, y_0)	$g(x_0, y_0)$	$g_x(x_0, y_0)$	$g_y(x_0, y_0)$	$g_{xx}(x_0, y_0)$	$g_{xy}(x_0, y_0)$	$g_{yy}(x_0, y_0)$
$(0, 1)$	0	3	0	0	-2	4
$(4, 3)$	-3	0	0	-1	2	-6
$(2, 7)$	15	0	0	4	5	8
$(5, 6)$	4	0	0	3	5	2
$(-2, 8)$	2	0	0	2	2	2

Answer:_____