<u>Present neatly. Justify for full credit. No Calculators.</u>

Name _____   Score _____   ~10 minutes / A

1. Find the points on the curve $y = (\cos x)/(2 + \sin x)$ at which the tangent line is horizontal. [5 points]

2. Evaluate or explain why it does not exist. [5 points]

   a)

   $$\lim_{x \to 1} \frac{\sin(x-1)}{x^2 + x - 2}$$

   b)

   $$\lim_{x \to \pi/4} \frac{1 - \tan x}{\sin x - \cos x}$$

Fiesta 12

<u>Present neatly. Justify for full credit. No Calculators.</u>

Name _____   Score _____   ~10 minutes / F

1.

For what values of x does the graph of $f(x) = x + 2 \sin x$
have a horizontal tangent?

[5 points]

2. Find

$$\frac{d^{35}}{dx^{35}}(x \sin x)$$

[2 points]

3.

Suppose $f(\pi/3) = 4$ and $f'(\pi/3) = -2$, and let
$g(x) = f(x) \sin x$ and $h(x) = (\cos x)/f(x)$. Find
(a) $g'(\pi/3)$ (b) $h'(\pi/3)$

[3 points]

Fiesta 12