Name: ID:

MAT342 Quiz 3
Wednesday, April 10

1. Let $$f(z) = \frac{(z^2-2z)\sin z - z^2 - 6z - 8}{z^3 - 4z} = \frac{2}{z} + \frac{\sin z}{z+2} - \frac{3}{z-2}$$
and let $\mathcal{C}$ be the positively oriented circle $\{\, z : |z-1| = 2 \,\}$. Calculate $\displaystyle\int_{\mathcal{C}} f(z)\, dz$.

2. Write the Laurent series for $g(z) = z^2 \cos(1/z)$. For what $z \in \mathbb{C}$ does this represent an analytic function?