Answers for Quiz #3

1. a. $\pm\frac{\pi}{8}$
   b. $0,1$
2. a. absolute max: (8, 120), absolute min: (1, -3/2)
   b. absolute max: $(0,\sqrt{3})$, absolute min: (±π/2, 1)
   c. absolute max: (-4, 48), absolute min: (0, 0); (5, 0)
   d. absolute max: (-8, 40), absolute min: (0,0)
3. a. f(x) is continuous on [a,b], f(x) is differentiable on (a,b); f(b) = f(a)
   Then there exists at least one c in (a,b) such that f(c) = 0.
   b. I. Rolle's Theorem fails because f(7) ≠ f(-1).
   II. Rolle's Theorem fails because f(x) is not differential at x = 0.
4. a. f(x) is continuous on [a,b] and f(x) is differentiable on (a, b)
   Then there exists one c in (a,b) such that $f'(c)=\frac{f(b)-f(a)}{b-a}$.
   b. I. c = π guarantees the theorem.
   II. c = π guarantees the theorem.

If you feel that there are errors with this answer page, please email Brian Beck-Smith at bbeck@utdallas.edu.