

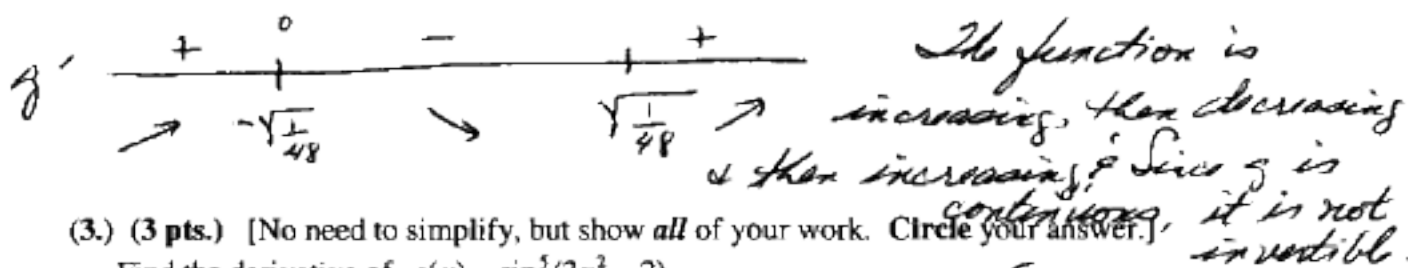
- (1.) (1 pt each) True / False--Circle your choice. Circle T only if the statement is *always* true.  
[No explanation necessary.]

- (a) If  $f'(x) = g'(x)$  for all  $x$ , then  $f(x) = g(x)$  for all  $x$ . T  F
- (b) If  $f''(a) = 0$ , then  $f$  has an inflection point at  $x = a$ . T  F
- (c) If  $x = p$  is not a critical point of  $f$ , then  $x = p$  is not a local maximum of  $f$ . T  F
- (d) If  $\int_0^2 f(x)dx = 6$  then  $\int_0^4 f(x)dx = 12$ . T  F
- (e) If  $\int_0^2 f(x)dx = 6$  and  $h(x) = 5f(x)$  then  $\int_0^2 h(t)dt = 30$ .  T  F

- (2.) (4 pts.) Is the function  $g(x) = x^3 - \frac{x}{16}$  invertible? No

Below, give a clear justification for your answer.

NOTE:  $g'(x) = 3x^2 - \frac{1}{16}$ , so  $g'(x) = 0$  if  $x^2 = \frac{1}{48}$   
 $\rightarrow x = \pm \sqrt{\frac{1}{48}} \approx \pm 0.1443$



- (3.) (3 pts.) [No need to simplify, but show *all* of your work. Circle your answer.]

Find the derivative of  $s(x) = \sin^5(3x^2 - 2)$ . =  $[\sin(3x^2 - 2)]^5$

$s'(x) = 5 \sin^4(3x^2 - 2) \cdot \cos(3x^2 - 2) (6x)$  ok to der or

$s'(x) = 30x \sin^4(3x^2 - 2) \cos(3x^2 - 2)$