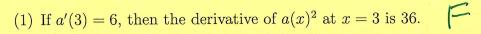
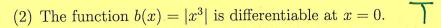
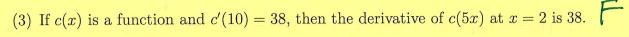
DERIVATIVES REVIEW: TRUE OR FALSE? JUSTIFY. SIDE A







(4) The function $d(x) = x^3 - 3x + 5$ has no maximum value on (-4, -2).

(5) If e(x) is differentiable at x = 2 and f(x) is differentiable at x = 2, then $(e \circ f)(x)$ is differentiable at x = 2.

(6) If g'(5) = -1, then g(5.001) < g(5).

(7) If h(x) has a local maximum at x = 7 (meaning that there is some $\delta > 0$ such that $h(7) \ge h(x)$ for all $x \in (7 - \delta, 7 + \delta)$) and h is differentiable at 7 then h'(7) = 0.

(8) If i'(7) = 0 then i(x) has a local maximum at x = 7 (meaning that there is some $\delta > 0$ such that $i(7) \geq i(x)$ for all $x \in (7 - \delta, 7 + \delta)$).

(9) If j'(5) = 0, then there is some $\delta > 0$ such that j(x) = j(5) for all $x \in (5 - \delta, 5 + \delta)$.

(10) If k(x) is increasing on the interval (-3,2), then k is differentiable on (-3,2) and $k'(x) \ge 0$ on (-3,2).

(11) If $\ell(x)$ is continuous at x = 0, then $x^2 \ell(x)$ is differentiable at x = 0.

(12) If m'(r) > 0 and m''(r) exists (meaning the function m'(x) is differentiable at x = r), then m is increasing on some interval containing r.

DERIVATIVES REVIEW: TRUE OR FALSE? JUSTIFY. SIDE B

- (1) If a(3) = 0 and a'(3) = 6, then the derivative of $x^2a(x)$ at x = 3 is 54.
- (2) The function $b(x) = |x^3 x|$ is differentiable at x = 0.
- (3) The function $c(x) = -3x^5 + 4x^4 + 3x^2 6x$ is increasing on some open interval $\sqrt{}$ containing x = 1.
- (4) The function $d(x) = x^3 3x + 5$ has no maximum value on [-4, -2].
- (5) If e(x) is differentiable at x = 2 and f(x) is differentiable at x = 2, then (ef)(x) is differentiable at x = 2.
- (6) If g'(5) = -1, then g(5.00...01) < g(5) if there are enough zeroes in the middle.
- (7) If h(x) has a local maximum at x = 7 (meaning that there is some $\delta > 0$ such that $f(7) \ge h(x)$ for all $x \in (7 \delta, 7 + \delta)$), then h'(7) = 0.
- (8) If j'(-1) = 1 and (i/j)(x) is not differentiable at x = -1, then i(x) is not differentiable at x = -1.
- (9) If k is not increasing on some interval I then there is some subinterval $J \subseteq I$ such that k is strictly decreasing on J.
- (10) If $\ell(x)$ is defined at x = 0, then $x^2 \ell(x)$ is differentiable at x = 0.
- (11) If m'(r) = 0 and m''(r) < 0, then m(x) has a local maximum at x = r (meaning that there is some $\delta > 0$ such that $m(r) \ge m(x)$ for all $x \in (r \delta, r + \delta)$).
- (12) If n(x) is continuous at x = 2, then n(x) is differentiable at x = 2.