

Answer Key

Testname: SUMMER_PACKET FOR MATH124_CALCULUS1B

- 1) -4
- 2) $1/2$
- 3) 0
- 4) 1
- 5) - 1
- 6) ∞
- 7) $\frac{5}{4}$
- 8) $\frac{5}{\sqrt{6}}$
- 9) Let $f(x) = x(x - 2)^2$ and let $y_0 = 2$. $f(1) = 1$ and $f(3) = 3$. Since f is continuous on $[1, 3]$ and since $y_0 = 2$ is between $f(1)$ and $f(3)$, by the Intermediate Value Theorem, there exists a c in the interval $(1, 3)$ with the property that $f(c) = 2$. Such a c is a solution to the equation $x(x - 2)^2 = 2$.
- 10) $a = 4$, $b = 9$
- 11) $k = 2$
- 12) 0 m, 0 m/sec
- 13) $a(10) = 18 \text{ m/sec}^2$, $a(4) = -18 \text{ m/sec}^2$
- 14) \$4.00
- 15) $-4\pi \cos^3(\pi t - 17) \sin(\pi t - 17)$
- 16) $5(2t + 4)^3(10t + 4)$
- 17) $\frac{dy}{dx} = \frac{1 - y}{1 + x}$; $\frac{d^2y}{dx^2} = \frac{2y - 2}{(x + 1)^2}$
- 18) $y = 2x - 3$
- 19) $\frac{\ln 2}{2\sqrt{t}} 2\sqrt{t}$
- 20) $y = -40x - 8$
- 21) $(x + 10)^x \left(\ln(x + 10) + \frac{x}{x + 10} \right)$
- 22) $\frac{3}{5}x^{-2/5}$
- 23) 22.5 m/s
- 24) 0.67 m/s
- 25) $\frac{15}{2} \text{ lb/in.}^2 \text{ per sec}$