

Exam 1, Part I Answers

1. (a) 2
(b) $11/3$
(c) 3
(d) ∞
(e) $-\infty$
(f) 0
2. (a) $x = \frac{\ln 7 - \ln 3}{2 \ln 3}$
(b) $x = 3/2$

Exam 1, Part II Answers

1. (a) **FALSE**
(b) **FALSE**
(c) **TRUE**
(d) **FALSE**
(e) **TRUE**
2. (a)
(b) $f(x) = \frac{3x^2}{(x-2)(x+1)}$
(c) $y = 2e^x$
(d)
3. (a) i. 47.84 ft/sec
ii. 48.16 ft/sec
(b) 48 ft/sec
4. Let $f(x) = x^5 - x^2 + 2x + 3$. Note that f is continuous everywhere, in particular, continuous on $[-2, 0]$. Now, $f(-2) = -37 < 0$ and $f(0) = 3 > 0$. Therefore, since f is continuous, it must be the case that $f(x) = 0$ for some x in $[-2, 0]$.
5. (a) $Q = Q_0(.99)^{t/1000}$
(b) 10483.28 years
(c) 81.79%