

AP CALCULUS PROBLEM SET #7 ANSWER KEY

MAX/MIN (CURVE ANALYSIS I)

1. \$330

2. a) $x = -1$

b) $x = -5$

c) $f''(0) < 0$ on $(-7, -3), (2, 3), (3, 5)$

d) Abs. max at $x = 7$

3. a) $\left(\frac{1}{\sqrt{3}}, \frac{8}{3}\right)$

b) $\frac{dA}{dt} = 4$ units²/sec.

4. a) $x = 0, \frac{\pi}{2}, \pi$

b) $\frac{\pi}{6} < x < \frac{\pi}{2}, \quad \frac{5\pi}{6} < x < \frac{3\pi}{2}$

c) abs min = $-\frac{1}{4}$, abs max = 2

5. a) $x \neq 0$

b) even

c) relative max at $x = 1$

relative max at $x = -1$

d) range = $\left(-\infty, \ln \frac{1}{2}\right]$

6. a) $A(1) = \frac{49}{4}$ square units

b) $A(w)$ minimized at $w = \sqrt{2}$

7. a) $\left(\frac{1}{k}, \frac{1}{ke}\right)$

b) $y = \frac{x}{e}, x > 0$