

AP CALCULUS PROBLEM SET 1 ANSWER KEY

1. a) $x = 2, 2, -\frac{5}{2}$

b) $y - 20 = \frac{1}{12}x$

c) $(-1, 27), (2, 0)$

2. a) $x = 100$

b) $y = \frac{3}{5}x + 20$

c) Line l hits tree at 170 m, 5 m below treetop

3. a) $x = -2$

b) $f'(1) = 0$

c) $f'(-1) = 4/9$

d) Range of f : $-1 < y \leq 1$

4. a) $c = 1$

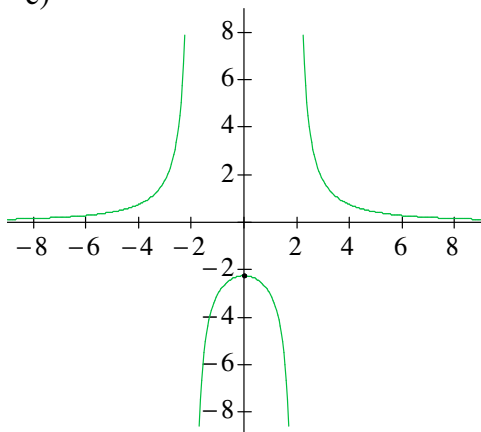
b) $y = 12x - 16$ is tangent to the cubic;

$y = 12x + 1$ is tangent to the parabola

5. a) $a = 0, b = 9, c = 4$

b) $x = 2, x = -2, y = 0$

c)



6. a) all real numbers

c) $y = -2, y = 2$

d) $\left[\frac{-4}{\sqrt{3}}, 2 \right)$

7. a) $f(x)$ is continuous for all $x \neq 1$

b) $a + b = 2$

c) $a = -3, b = 5$

8. a) $x \in \mathbb{R}, x \neq \pm 2$

b) $x = -2, x = 2, y = 0$

c) $f'(x) = \frac{-2(x-4)(x-1)}{(x^2-4)^2}$

d) $y = -\frac{1}{2}x + \frac{5}{4}$