

1. a. -1 b. 1 c. DNE d. -3 e. 1 f. 3 g. 4 h. ∞ i. DNE j. -2

2. a. $-\frac{13}{20}$ b. $-\frac{2}{125}$

3. a. $\frac{9}{4}$ b. $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right) = -\frac{\pi}{3}$

4. a. $y = -\frac{5}{2}, x = 3$ b. $y = 5, y = -5, x = 2$

5. $a = \frac{7}{2}, b = \frac{15}{4}$

6. $f'(x) = \lim_{h \rightarrow 0} \frac{\frac{2(x+h)}{(x+h)-7} - \frac{2x}{x-7}}{h} = \dots = \frac{-14}{(x-7)^2}$

7. a. $48x^7 - 4e^x + \frac{5}{3}\sqrt[3]{x^2} + \frac{14}{x^3}$

b. $\frac{35}{2}x^{5/2} - \frac{35}{2}x^{3/2} + 2x^{-1/2}$

c. $\frac{[e^x(2x^4-7) + e^x[8x^3]](5x^3+8x) - (e^x(2x^4-7))[15x^2+8]}{(5x^3+8x)^2}$