

# Chapter 8

# MATH ZOO

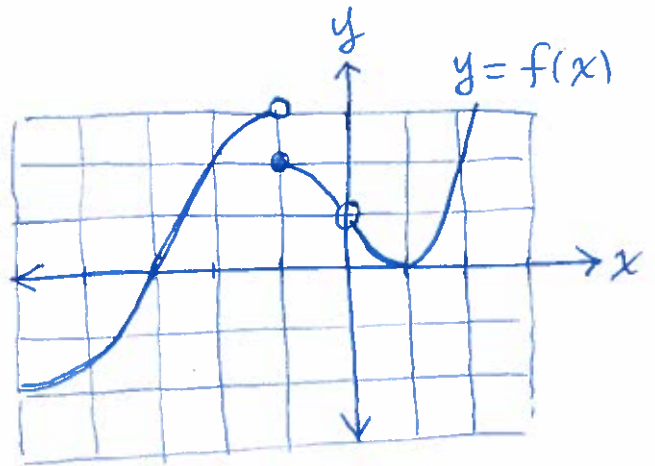
8 a  $f(-1) = \boxed{2}$

b  $\lim_{x \rightarrow -1^+} f(x) = \boxed{2}$

c  $\lim_{x \rightarrow -1^-} f(x) = \boxed{3}$

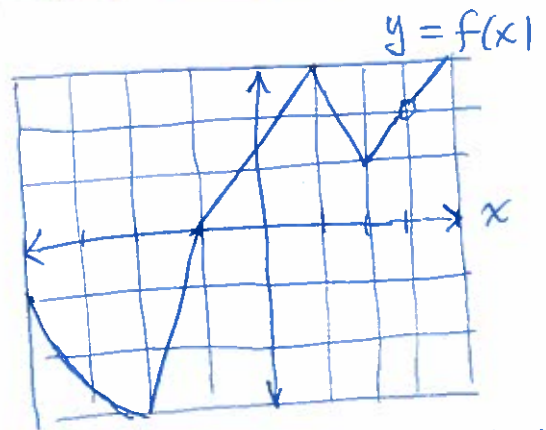
d  $\lim_{x \rightarrow -1} f(x) = \boxed{\text{DNE}}$

e  $\lim_{x \rightarrow 0^+} f(x) = \boxed{1}$

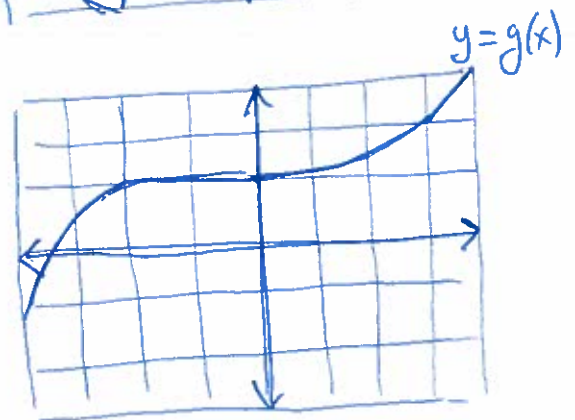


10 a  $\lim_{x \rightarrow 3} f(x) = \boxed{2}$

b  $\lim_{x \rightarrow -2} \frac{3f(x)g(x)}{\sqrt{12+f(x)}} = \frac{3f(-2)g(-2)}{\sqrt{12+f(-2)}} =$   
 $= \frac{3 \cdot (-3) \cdot (1)}{\sqrt{12+(-3)}} = \frac{-9}{\sqrt{9}} = \boxed{-3}$



c  $g \circ f(-2) = g(f(-2)) = g(-3) = \boxed{\frac{1}{2}}$



d  $\lim_{x \rightarrow 3} f(g(x)) = f(2) = \boxed{1}$

16  $\lim_{x \rightarrow 0} \frac{x^2 - 5x}{x - 3} = \frac{0^2 - 5 \cdot 0}{0 - 3} = \frac{0}{-3} = \boxed{0}$

22  $\lim_{x \rightarrow -4} \sqrt{\frac{x}{x-3}} = \sqrt{\lim_{x \rightarrow -4} \frac{x}{x-3}} = \sqrt{\frac{-4}{-4-3}} = \sqrt{\frac{4}{7}} = \boxed{\frac{2}{\sqrt{7}}}$

24  $\lim_{x \rightarrow 2} \left( \frac{1}{4} + \frac{8}{x^2} \right)^{3/2} = \lim_{x \rightarrow 2} \sqrt{\frac{1}{4} + \frac{8}{x^2}}^3 = \sqrt{\frac{1}{4} + \frac{8}{2^2}}^3 = \sqrt{\frac{9}{4}}^3 = \left( \frac{3}{2} \right)^3 = \boxed{\frac{27}{8}}$