

Limits of Basic Functions

1. a. $\lim_{x \rightarrow 2} x = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -2} x = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\infty} x = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} x = \underline{\hspace{2cm}}$
2. a. $\lim_{x \rightarrow 2} x^2 = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -2} x^2 = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\infty} x^2 = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} x^2 = \underline{\hspace{2cm}}$
3. a. $\lim_{x \rightarrow \frac{1}{2}} x^3 = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -3} x^3 = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\infty} x^3 = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} x^3 = \underline{\hspace{2cm}}$
4. a. $\lim_{x \rightarrow 5} |x| = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -2} |x| = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\infty} |x| = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} |x| = \underline{\hspace{2cm}}$

5. a. $\lim_{x \rightarrow 5} \sqrt{x} = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -8} \sqrt{x} = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\infty} \sqrt{x} = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \sqrt{x} = \underline{\hspace{2cm}}$
6. a. $\lim_{x \rightarrow 2.3} \lfloor x \rfloor = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -3.4} \lfloor x \rfloor = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow 2} \lfloor x \rfloor = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \lfloor x \rfloor = \underline{\hspace{2cm}}$
7. a. $\lim_{x \rightarrow 3} \frac{1}{x^3} = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -8} \frac{1}{x^3} = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\infty} \frac{1}{x^3} = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \frac{1}{x^3} = \underline{\hspace{2cm}}$
8. a. $\lim_{x \rightarrow 3} x^{\frac{2}{3}} = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -8} x^{\frac{2}{3}} = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow 27} x^{\frac{2}{3}} = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} x^{\frac{2}{3}} = \underline{\hspace{2cm}}$

9. a. $\lim_{x \rightarrow 2} \frac{1}{x} = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -2} \frac{1}{x} = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\infty} \frac{1}{x} = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \frac{1}{x} = \underline{\hspace{2cm}}$
10. a. $\lim_{x \rightarrow 2} \frac{1}{x^2} = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -2} \frac{1}{x^2} = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\infty} \frac{1}{x^2} = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \frac{1}{x^2} = \underline{\hspace{2cm}}$
11. a. $\lim_{x \rightarrow 5} \sqrt{x} = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -8} \sqrt{x} = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\infty} \sqrt{x} = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \sqrt{x} = \underline{\hspace{2cm}}$
12. a. $\lim_{x \rightarrow 2} e^x = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -2} e^x = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\infty} e^x = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} e^x = \underline{\hspace{2cm}}$

13. a. $\lim_{x \rightarrow 2} \ln x = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -2} \ln x = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\infty} \ln x = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \ln x = \underline{\hspace{2cm}}$
14. a. $\lim_{x \rightarrow \frac{\pi}{2}} \sin x = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow \frac{\pi}{2}} \sin x = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow \pi} \sin x = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \sin x = \underline{\hspace{2cm}}$
15. a. $\lim_{x \rightarrow \pi} \cos x = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -\pi} \cos x = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow \frac{\pi}{2}} \cos x = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \cos x = \underline{\hspace{2cm}}$
16. a. $\lim_{x \rightarrow \frac{\pi}{2}} \tan x = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow 0} \tan x = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow -\pi} \tan x = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \tan x = \underline{\hspace{2cm}}$

17. a. $\lim_{x \rightarrow \frac{\pi}{2}} \cot x = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow 0} \cot x = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow \frac{3\pi}{2}} \cot x = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \cot x = \underline{\hspace{2cm}}$
18. a. $\lim_{x \rightarrow \frac{\pi}{2}} \csc x = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow \frac{\pi}{2}} \csc x = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow \pi} \csc x = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \csc x = \underline{\hspace{2cm}}$
19. a. $\lim_{x \rightarrow \frac{\pi}{2}} \sec x = \underline{\hspace{2cm}}$
 b. $\lim_{x \rightarrow -4} \sec x = \underline{\hspace{2cm}}$
 c. $\lim_{x \rightarrow 0} \sec x = \underline{\hspace{2cm}}$
 d. $\lim_{x \rightarrow \infty} \sec x = \underline{\hspace{2cm}}$