

# Section 1.3 Limits

# Answer Key

Pages 67-68

#'s 8, 12, 16, 20, 22, 28, 30, 32, 34, 49, 50, 52, 55, 56, 58, 60

$$\begin{aligned} 8) \lim_{x \rightarrow -3} (3x+2) \\ &= 3(-3)+2 \\ &= -9+2 \end{aligned}$$

$$\lim_{x \rightarrow -3} (3x+2) = -7$$

$$\begin{aligned} 12) \lim_{x \rightarrow 1} (3x^3 - 2x^2 + 4) \\ &= 3(1)^3 - 2(1)^2 + 4 \\ &= 3 - 2 + 4 \\ &= 5 \end{aligned}$$

$$\lim_{x \rightarrow 1} 3x^3 - 2x^2 + 4 = 5$$

$$\begin{aligned} 16) \lim_{x \rightarrow 3} \frac{2x-3}{x+5} \\ &= \frac{2(3)-3}{3+5} \\ &= \frac{6-3}{8} \\ &= \frac{3}{8} \end{aligned}$$

$$\lim_{x \rightarrow 3} \frac{2x-3}{x+5} = \frac{3}{8}$$

$$\begin{aligned} 20) \lim_{x \rightarrow 4} \sqrt[3]{x+4} \\ &= \sqrt[3]{4+4} \\ &= \sqrt[3]{8} \\ &= 2 \end{aligned}$$

$$\lim_{x \rightarrow 4} \sqrt[3]{x+4} = 2$$

$$\begin{aligned} 22) \lim_{x \rightarrow 0} (2x-1)^3 \\ &= (2(0)-1)^3 \\ &= (-1)^3 \\ &= -1 \end{aligned}$$

$$\lim_{x \rightarrow 0} (2x-1)^3 = -1$$

$$\begin{aligned} 28) \lim_{x \rightarrow \pi} \tan x \\ &= \tan \pi \\ &= 0 \end{aligned}$$

$$\lim_{x \rightarrow \pi} \tan x = 0$$

$$\begin{aligned} 30) \lim_{x \rightarrow 1} \sin \frac{\pi x}{2} \\ &= \sin \frac{\pi}{2} \\ &= 1 \end{aligned}$$

$$\lim_{x \rightarrow 1} \sin \frac{\pi x}{2} = 1$$

$$\begin{aligned} 32) \lim_{x \rightarrow \pi} \cos 3x \\ &= \cos 3\pi \\ &= -1 \end{aligned}$$

$$\lim_{x \rightarrow \pi} \cos 3x = -1$$

$$\begin{aligned} 34) \lim_{x \rightarrow \frac{5\pi}{3}} \cos x \\ &= \cos \frac{5\pi}{3} \\ &= \frac{1}{2} \end{aligned}$$

$$\lim_{x \rightarrow \frac{5\pi}{3}} \cos x = \frac{1}{2}$$