Limits of a Functions:

Determine the limit of each function at the indicated value:

1. $\displaystyle\lim_{t \to 0} \frac{\sqrt{t+9}-3}{t}$

2. $\displaystyle\lim_{x \to 0} \frac{\sin x}{x}$

3. $\displaystyle\lim_{x \to 0} \sin\frac{\pi}{x}$

4. $\displaystyle\lim_{x \to 5}\left(2x^2 - 3x + 4\right)$

5. $\displaystyle\lim_{x \to 1}\left[\sqrt[5]{x^2 - x} + \left(x^3 + x\right)^9\right]$

6. $\displaystyle\lim_{x \to 2}\left(x^2 + 1\right)\left(x^2 + 4x\right)$

7. $\displaystyle\lim_{w \to -2}\sqrt[3]{\frac{4w + 3w^3}{3w + 10}}$

8. $\displaystyle\lim_{x \to 3} \frac{x^2 - 3x + 12}{x + 3}$

9. $\displaystyle\lim_{x \to -4}|x + 4|$

10. $\displaystyle\lim_{x \to 0} \frac{1}{x^2}$

11. $\displaystyle\lim_{x \to 0} \frac{|x|}{x}$

12. $\displaystyle\lim_{x \to 3}\sqrt[3]{2x^2 - 10}$

13. $\displaystyle\lim_{x \to 1} \frac{x^3 - 1}{x - 1}$

14. $\displaystyle\lim_{x \to 0} \frac{\tan x}{x}$

15. $\displaystyle\lim_{x \to 0} \frac{\cos x}{x}$

16. $\displaystyle\lim_{x \to \infty} \frac{1 - \cos x}{x}$

17. $\displaystyle\lim_{x \to 1} \frac{4 - \sqrt{x}}{x - 16}$

18. $\displaystyle\lim_{x \to \pi/2} \frac{\cos x}{\cot x}$