

Calculus I SI Worksheets

Lesson 2.3: Limit Laws

Pick a random problem to start, and then go to the corresponding problem number after solving (if the answer is 1, go to problem 1 next).

$$1. \lim_{x \rightarrow 3} \frac{x^2 - 2x - 3}{x - 3}$$

$$\lim_{x \rightarrow 3} \frac{(x-3)(x+1)}{(x-3)}$$

$$\lim_{x \rightarrow 3} x+1$$

$$= 3+1 = \boxed{4}$$

$$2. \lim_{x \rightarrow 2} \frac{x^2 - x - 2}{x - 2} + \frac{x^3 - 4x}{x^2 - 4}$$

$$\lim_{x \rightarrow 2} \frac{(x-2)(x+1)}{(x-2)} + \frac{(x^2-4)(x)}{(x^2-4)}$$

$$\lim_{x \rightarrow 2} x+1 + x$$

$$= 2+1+2$$

$$= \boxed{5}$$

$$3. \lim_{x \rightarrow -2} \frac{x^2 + 5x + 6}{x + 2}$$

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

$$\lim_{x \rightarrow -2} x+3$$

$$= -2+3 = \boxed{1}$$

$$4. \lim_{x \rightarrow 1} x^2 - x + 2$$

$$= 1 - 1 + 2$$

$$= \boxed{2}$$

$$5. \lim_{x \rightarrow 5} \frac{5}{x} + x$$

$$= \frac{5}{5} + 5$$

$$= \boxed{6}$$

$$6. \lim_{x \rightarrow 2} \sqrt{x^2 + 5x - 5}$$

$$= \sqrt{4 + 10 - 5}$$

$$= \sqrt{9}$$

$$= \boxed{3}$$