

The given limit is a derivative, but of what function and at what point?

$$1. \lim_{h \rightarrow 0} \frac{2(5+h)^3 - 2(5)^3}{h}$$

$$f(x) = 2x^3 \text{ @ } x = 5$$

$$2. \lim_{\Delta x \rightarrow 0} \frac{4(3+\Delta x)^3 - 4(3)^3}{\Delta x}$$

$$f(x) = 4x^3 \text{ @ } x = 3$$

$$3. \lim_{h \rightarrow 0} \frac{5(2+h)^3 + 8(2+h) - 56}{h}$$

$$f(x) = 5x^3 + 8x$$
$$\text{ @ } x = 2$$

$$4. \lim_{\Delta x \rightarrow 0} \frac{5(2+\Delta x)^2 - 20}{\Delta x}$$

$$f(x) = 5x^2$$
$$\text{ @ } x = 2$$

$$5. \lim_{\Delta x \rightarrow 0} \frac{2(1+\Delta x)^3 + 4(1+\Delta x) - 6}{\Delta x}$$

$$f(x) = 2x^3 + 4x$$
$$\text{ @ } x = 1$$

$$6. \lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2}$$

$$f(x) = x^2$$
$$\text{ @ } x = 2$$

$$7. \lim_{x \rightarrow 3} \frac{x^3 + x - 30}{x - 3}$$

$$f(x) = x^3 + x$$
$$\text{ @ } x = 3$$

$$8. \lim_{x \rightarrow t} \frac{\frac{2}{x} - \frac{2}{t}}{x - t}$$

$$f(x) = \frac{2}{x} \text{ @ } x = t$$

$$9. \lim_{x \rightarrow p} \frac{x^3 - p^3}{x - p}$$

$$f(x) = x^3 \text{ @ } x = p$$

$$10. \lim_{\Delta x \rightarrow 0} \frac{\sin\left(\frac{\pi}{2} + \Delta x\right) - 1}{\Delta x}$$

$$f(x) = \sin x$$
$$\text{ @ } x = 0$$