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(3)

$h = \sqrt{x}$

a) $h'(4) = \frac{1}{2\sqrt{4}} = \frac{1}{4}$

$h''(4) = -\frac{1}{4\sqrt{4^3}} = -\frac{1}{32}$

$h'''(4) = \frac{3}{8\sqrt{4^5}}$

$h^{(4)}(4) = -\frac{15}{16x^{7/2}}$ (lo dejo calculado para el inciso b)

$T_{3,4}(x) = \frac{3(x-4)^3}{8\sqrt{4^5}\cdot 3!} = \frac{3(x-4)^3}{8.6.32} = \frac{3(x-4)^3}{1566}$

$R_{n,a}(x) = \frac{f^{(n+1)}(t)}{(n+1)!}\cdot(x-a)^{(n+1)}$

(*) $-3 \le x \le 5$, $t \in [0,x) \Rightarrow t$ está acotado por x, $t \le 5$

$R_{3,4}(x) = -\frac{15(x-4)^4}{16\sqrt{t^7}\,4!} \le -\frac{15(x-4)^4}{16\sqrt{5^7}\cdot 24} \overset{(*)}{\le} -\frac{15(5-4)^4}{16\sqrt{5^7}\cdot 24} =$

$$\frac{15}{16\sqrt{5^7}\cdot 24}$$