Taller 9

1)

$f'(x) = 3,3x^2 - 3,2x + 3 \rightarrow f'(x_0) = 3,3(0,5)^2 - 3,2(0,5) + 3$
$= 2.225$

$f''(x) = 6,6x - 3,2 \rightarrow f''(x_0) = 6,6(0,5) - 3,2 = 0,1$

$f'''(x) = 6,6 \rightarrow f'''(x_0) = 6,6$

$f(x_0) = 1,1(0,5)^3 - 1,6(0,5)^2 + 3(0,5) - 5 = -3,7625$

$f(x) \approx f(x_0) + f'(x_0)(x - x_0) + \frac{f''(x_0)}{2!}(x - x_0)^2 + \frac{f'''(x_0)}{3!}(x - x_0)^3$

$x = 0,6 \rightarrow x - x_0 = 0,6 - 0,5 = 0,1$

$f(0,6) \approx -3,7625 + (2,225)(0,1) + \frac{0,1}{2}(0,1)^2 + \frac{6.6}{6}(0,1)^3$

$f(0,6) \approx -3,7625 + (2,225)(0,1) + (0,05)(0,1)^2 + (1,1)(0,1)^3$

$f(0,6) \approx -3,5384$

2)

$f(x_0) = 1,6e^{0,4} - 4,2(0,4) + 2,75 \approx 3,45692$

$f'(x) = 1,6e^x - 4,2 \rightarrow f'(x_0) = 1,6e^{0,4} - 4,2 \approx -1,813308$

$f''(x) = 1,6e^x \rightarrow f''(x_0) = 1,6e^{0,4} \approx 2,38692$

$f'''(x) = 1,6e^x \rightarrow f'''(x_0) = 1,6e^{0,4} \approx 2,38692$

$x = 0,45 \rightarrow x - x_0 = 0,45 - 0,4 = 0,05$

$f(0,45) \approx 3,45692 + (-1,813308)(0,05) + \frac{2,38692}{2}(0,05)^2 +$

$\frac{2,38692}{6}(0,05)^3$

$f(0,45) \approx 3,369299375$