"On my honor, I have neither given nor received any unauthorized and/or inappropriate assistance for all sessions of this exam. The work done on this exam is totally my own. I understand that by the school code, violation of these principles will lead to a zero grade and is subject to harsh disciplive issues."

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$x_1 = 0 \quad f(x_1) = 3.85$

$x_2 = 20 \quad f(x_2) = 0.800$

$x_3 = 40 \quad f(x_3) = 0.212$

evaluate at $x = 15$.

$$f(x) = \frac{x - x_2}{x_1 - x_2} f(x_1) + \frac{x - x_1}{x_2 - x_1} \cdot f(x_2)$$

$$f_1(15) = \frac{15 - 20}{0 - 20} \cdot 3.85 + \frac{15 - 0}{20 - 0} \cdot 0.800 = \frac{3.85}{4} + \frac{2.4}{4} = \frac{6.25}{4}$$

$$f_1(15) = 1.5625$$

$$f_2(x) = \frac{(x - x_2)(x - x_3)}{(x_1 - x_2)(x_1 - x_3)} f(x_1) + \frac{(x - x_1)(x - x_3)}{(x_2 - x_1)(x_2 - x_3)} f(x_2) + \frac{(x - x_1)(x - x_2)}{(x_3 - x_1)(x_3 - x_2)} f(x_3)$$

$$\frac{(-5)(-25)}{(-20)(-40)} \cdot 3.85 + \frac{15 \cdot (-25)}{20 \cdot (-20)} \cdot 0.800 + \frac{15 \cdot (-5)}{40 \cdot 20} \cdot 0.212 = f_2(15)$$

$$\frac{3.85}{4} + \frac{3}{5} - \frac{3.18}{160} = 1.3515625 - 0.019875 = 1.3316875$$

$$\frac{19.25}{32}$$

$$f_2(15) = 1.3316875$$