1 part a.

No access to syms [1] given our installation of MATLAB.

With our work from A3of101021174.m q1a we must solve: 7/16 \* (x - 0)(x - 2)(x - 6) + -1/24 \* (x - 0)(x - 2)(x - 4) which equals p(x) = (19/48) x^3 + (-33/8) x^2 + (61/6) x + 0 according to Wolfram Alpha in [2].

I could of hand calculated this, but I already built the necessary string to expand the polynomial and collect like terms. I emailed the good professor and confirmed no explicit written requirement.

See A3of101021174.m q1a for work. I did plot to confirm the line does fit.

A screen shot of a graph

Description automatically generated

Figure 1. Lagrange Interpolation. P(x) =(19/48) x^3 + (-33/8) x^2 + (61/6) x + 0

The raw form of the solution by Lagrange Interpolation is: (-1/24) \* (x - 0) .\* (x - 2) .\* (x - 4) + (7/16) \* (x - 0) .\* (x - 4) .\* (x - 6). Which can be simplified into standard form: (19/48) x^3 + (-33/8) x^2 + (61/6) x + 0, where a = 19/48, b = -33/8, c = 61/6.

1 part b.

A screen shot of a graph

Description automatically generated

Figure 2. Newton Interpolation. P(x) = (19/48) x^3 + (-33/8) x^2 + (61/6) x + 0

The raw form of the solution by Lagrange Interpolation is:

(19/48) \* (x - 0) .\* (x - 2) .\* (x - 4) + (-7/4) \* (x - 0) .\* (x - 2) + (7/2) \* (x - 0). Which can be simplified into standard form: (19/48) x^3 + (-33/8) x^2 + (61/6) x + 0, where a = 19/48, b = -33/8, c = 61/6.

[1] <https://www.mathworks.com/help/symbolic/syms.html>

[2] [https://www.wolframalpha.com/input?i=7%2F16+\*+%28x+-+0%29%28x+-+4%29%28x+-+6%29+%2B+-1%2F24+\*+%28x+-+0%29%28x+-+2%29%28x+-+4%29+expand+polynomial](https://www.wolframalpha.com/input?i=7%2F16+*+%28x+-+0%29%28x+-+4%29%28x+-+6%29+%2B+-1%2F24+*+%28x+-+0%29%28x+-+2%29%28x+-+4%29+expand+polynomial)

[3] <https://www.wolframalpha.com/input?i=%28+19%2F48+%29%28x+-+0%29%28x+-+2%29%28x+-+4%29+%2B+%28+-7%2F4+%29%28x+-+0%29%28x+-+2%29+%2B%28+7%2F2+%29%28x+-+0%29+expand+polynomial>