

This sheet can be used for scratch-work—if so, write name and attach to submission

Some Formulas

$$L_i(x) = \prod_{\substack{j=0 \\ j \neq i}}^n \frac{x - x_j}{x_i - x_j} = \frac{F(x)}{F'(x_i)(x - x_i)}, \text{ where } F(x) = \prod_{i=0}^n (x - x_i); \quad y = \sum_{i=0}^n y_i L_i(x);$$

$$[y_i] = y_i; \quad [y_i, \dots, y_{i+k}] = \frac{[y_{i+1}, \dots, y_{i+k}] - [y_i, \dots, y_{i+k-1}]}{x_{i+k} - x_i};$$

$$s_i(x) = \frac{y_i''(x - x_{i-1})}{6(x_i - x_{i-1})} [(x - x_{i-1})^2 - (x_i - x_{i-1})^2] + \frac{y_{i-1}''(x_i - x)}{6(x_i - x_{i-1})} [(x_i - x)^2 - (x_i - x_{i-1})^2] + \frac{y_{i-1}(x_i - x) + y_i(x - x_{i-1})}{x_i - x_{i-1}};$$

$$y_{i-1}''(x_{i-1} - x_i) + 2y_i''(x_{i-1} - x_{i+1}) + y_{i+1}''(x_i - x_{i+1}) = 6 \left(\frac{y_{i-1} - y_i}{x_{i-1} - x_i} - \frac{y_i - y_{i+1}}{x_i - x_{i+1}} \right);$$

$$S = \sum_{i=0}^n W_i^2 [y_i - f(x_i)]^2; \quad A^T A \vec{a} = A^T \vec{y}, \text{ where } A = [f_j(x_i)] \text{ and } \vec{y} = [y_i]; \quad a = \frac{\sum x_i (y_i - \bar{y})}{\sum x_i (x_i - \bar{x})}, \quad b = \bar{y} - a\bar{x}$$

Reminders

On your workdesk:

- Writing implements: pens, correction devices
- Calculator (optional)
- A water bottle (optional), tissue (optional)

No communication with other test-takers allowed:
raise hand for attention and blank sheets

Bags can be placed underneath
or at the sides of the room

Phones, tablets or other internet enabled devices should be
turned off (not silent mode), **placed in your bag**

No toilet breaks during quiz-taking

Submit sheets to front