$x_0 = 0, \quad f_0 = 0,$
$x_1 = 1/2, \quad f_1 = 1,$
$x_2 = 1 \quad f_2 = 0$

$f(x): \quad f(x_i) = S(x_i), \quad i = 0, 1, 2$

$$S_0(x) = \frac{1}{3}a_1 x^3 + b_0\left(\frac{1}{2} - x\right) + c_0 x$$

$$S_1(x) = \frac{1}{3}a_1(1-x)^3 + b_1(1-x) + c_1\left(x - \frac{1}{2}\right)$$

$b_0 = 0, \quad c_0 = 2 - a_1\frac{1}{12}$

$b_1 = 2 - \frac{a_1}{12}, \quad c_1 = 0$

$$a_1 = \frac{6}{4} \cdot 2^3 \cdot (-2)$$

$$= \frac{6 \cdot 8}{4} \cdot -2$$

$$= 6 \cdot 2 \cdot -2$$

$$= 12 \cdot -2$$

$$\boxed{a_1 = -24}$$

$S_0(x) = -8x^3 + (2 + 24/12)x$

$= -8x^3 + (2+2)x$

$\boxed{S_0(x) = -8x^3 + 4x}$

$S_1(x) = -8(1-x)^3 + (2 + 24/12)(1-x)$

$\boxed{S_1(x) = -8(1-x)^3 + 4(1-x)}$

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11 ON THURS