

4.26  
7

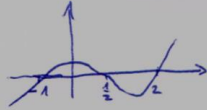
$$\therefore f' \circ m_{2,1} = -1 \rightarrow f' = 9$$

$$f' = a(x+1)(x-2) + (ax+b)(x-2) + (ax+b)(x+1)$$

$$9 = f'(-1) = (-a+b)(-3) \rightarrow 3a-3b=9 \rightarrow a-b=3 \rightarrow a=3$$

$$9 = f'(2) = (2a+b) \cdot 3 \rightarrow 6a+3b=9 \rightarrow 2a+b=3 \rightarrow b=-3$$

$\therefore$



$$f = (2x-1)(x+1)(x-2) = (2x-1)(x^2-x-2) \\ = 2x^3 - x^2 - 2x^2 + x - 4x + 2 = 2x^3 - 3x^2 - 3x + 2$$

$$\int_{-1}^{\frac{1}{2}} (2x^3 - 3x^2 - 3x + 2) dx = \left[ \frac{2x^4}{4} - x^3 - \frac{3}{2}x^2 + 2x \right]_{-1}^{\frac{1}{2}} = \left[ \frac{x^4}{2} - x^3 - \frac{3}{2}x^2 + 2x \right]_{-1}^{\frac{1}{2}} \\ = \left( \frac{1}{32} - \frac{1}{8} - \frac{3}{8} + 1 \right) - \left( \frac{1}{2} + 1 - \frac{3}{2} - 2 \right) - (8 - 8 - 6 + 4) + \left( \frac{1}{32} - \frac{1}{8} - \frac{3}{8} + 1 \right) = \frac{1}{16}$$