1 Suppose:

$$p_1(x) = x^4 + x^2 + 1 \tag{1}$$
$$p_2(x) = x^4 + 2x^2 - 1 \tag{2}$$
$$p_3(x) = x^4 - 4 \tag{3}$$
$$p(x) = x^4 \tag{4}$$

2 Then

$$p(x) = \tfrac{1}{7}(3p_3 - 4(p_2(x) - 2p_1(x)) \tag{5}$$
$$= \tfrac{8}{7}p_1(x) - \tfrac{4}{7}p_2(x) + \tfrac{3}{7}p_3(x) \tag{6}$$