

3.51
E3

$$p(x) = (x^3 - 1)Q(x) - 2x + 3$$

$$p(1) = -2 + 3 = 1 = 1 - a + b - 1 + c + d \rightarrow \text{(1)}$$

$$p(x) = x(x^2 - 4)S(x) + 3x^2 + 13x + 3 \rightarrow \boxed{A = -a + b + c + d}$$

$$p(x) = x(x-2)(x+2)S(x) + 3x^2 + 13x + 3$$

$$p(0) = \boxed{3 = d}$$

$$p(2) = 0 + 12 + 26 + 3 = 41 = 32 - 16a + 8b - 4 + 2c + d$$

$$(2) \quad \boxed{13 = -16a + 8b + 2c + d}$$

$$p(-2) = 0 + 12 - 26 + 3 = -11 = -32 - 16a - 8b - 4 - 2c + d$$

$$(3) \quad \boxed{25 = -16a - 8b - 2c + d}$$

$$(2) + (3) \quad 38 = -32a + 2d = 3$$

$$\boxed{a = -1}$$

$$b + c = -3$$

$$13 = 16 + 8b + 2c + 3$$

$$-6 = 8b + 2c = 8(-3 - c) + 2c$$

$$c = -3, \quad b = 0$$