

3.70
r3

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

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

$$p(0) = 0 - 2 = -2$$

$$p(1) = 0 + 1 + 1 - 2 = 0$$

$$p(-1) = 0 + 1 - 1 - 2 = -2$$

$$p(x) = (x^2 + 5x + 6) S(x) + 1$$

$$p(x) = (x+2)(x+3) S(x) + 1$$

$$p(-2) = 0 + 1 = 1$$

$$p(-3) = 1$$

$$p(x) = (x^3 + x^2 - 2x) R(x) + ax^2 + bx + c$$

$$p(x) = x(x^2 + x - 2) R(x) + ax^2 + bx + c$$

$$p(x) = x(x+2)(x-1) R(x) + ax^2 + bx + c$$

$$p(0) = -2 = c$$

$$p(1) = 0 = a + b + c \rightarrow a + b = 2$$

$$p(-2) = 1 = 4a - 2b + c \rightarrow 4a - 2b = 3$$

$$\left. \begin{array}{l} a + b = 2 \\ 4a - 2b = 3 \end{array} \right\} a = \frac{7}{6}, b = \frac{5}{6}$$

$$\frac{7}{6}x^2 + \frac{5}{6}x - 2 \quad (\text{to write})$$