

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 5x^2 + 2x + 8] & .2 = [p(x) - q(x) = -3x^2 - 2x - 2] \\ .3 = [q(x) - p(x) = 3x^2 + 2x + 2] & .4 = [mp(x) - nq(x) = -5x^2 - 4x - 1] \\ .5 = [p(x)q(x) = 4x^4 + 2x^3 + 17x^2 + 6x + 15] & .6 = [[p(x)]^2 = x^4 + 6x^2 + 9] \end{array} \right]$$

$$Ans4 = [a + b = 10, a b = 16], \quad , \quad Ans5 = [a = -1, b = 4, a b = -4]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 2x^4 + 4x^3 + x^2 - 4x + 1 \\ R(x) = 3 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 2x + 4 \\ R(x) = x^3 - 4x^2 + x + 3 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 4x + 3 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 - x^2 - 4 \\ R(x) = 14 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 + 6x \\ R(x) = 18x - 3 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 6 \\ R(x) = 10 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 3x^2 + x - 3] & .2 = [p(x) - q(x) = -x^2 - x + 5] \\ .3 = [q(x) - p(x) = x^2 + x - 5] & .4 = [mp(x) - nq(x) = -3x^2 - 4x + 21] \\ .5 = [p(x)q(x) = 2x^4 + x^3 - 2x^2 + x - 4] & .6 = [[p(x)]^2 = x^4 + 2x^2 + 1] \end{array} \right]$$

$$Ans4 = [a + b = -5, a b = -36], \quad , \quad Ans5 = [a = 4, b = 6, a b = 24]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 5x^3 - 4x^2 + 2x - 1 \\ R(x) = 0 \end{array} \right] \\ .2 = \left[\begin{array}{l} Q(x) = 5x - 4 \\ R(x) = 2x^3 - x^2 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -2x + 6 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 3x^2 + 5x + 8 \\ R(x) = 20 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 - 3x \\ R(x) = 3x - 4 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = 5 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 4x^2 + 3x - 7] & .2 = [p(x) - q(x) = -2x^2 - 3x + 3] \\ .3 = [q(x) - p(x) = 2x^2 + 3x - 3] & .4 = [mp(x) - nq(x) = -5x^2 - 9x + 7] \\ .5 = [p(x)q(x) = 3x^4 + 3x^3 - 11x^2 - 6x + 10] & .6 = [[p(x)]^2 = x^4 - 4x^2 + 4] \end{array} \right]$$

$$Ans4 = [a + b = 14, a b = 48], \quad , \quad Ans5 = [a = 1, b = 7, a b = 7]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 2x^4 - 2x^3 + 3x^2 - x + 4 \\ R(x) = 0 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -4x - 4 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 + 6x \\ R(x) = 12x + 2 \end{array} \right] \end{array} \right] \quad \left[\begin{array}{l} .2 = \left[\begin{array}{l} Q(x) = 2x - 2 \\ R(x) = 3x^3 - x^2 + 4x \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 2x^2 - 7x + 21 \\ R(x) = -68 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 \\ R(x) = -2 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 5x^2 - 5x + 3] & .2 = [p(x) - q(x) = -3x^2 + 5x - 5] \\ .3 = [q(x) - p(x) = 3x^2 - 5x + 5] & .4 = [mp(x) - nq(x) = -5x^2 + 10x - 11] \\ .5 = [p(x)q(x) = 4x^4 - 5x^3 + 5x - 4] & .6 = [[p(x)]^2 = x^4 - 2x^2 + 1] \end{array} \right]$$

$$Ans4 = [a + b = 7, a b = 10], \quad , \quad Ans5 = [a = 3, b = 2, a b = 6]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 4x^4 - 4x^3 + 3x^2 + 4x - 3 \\ R(x) = 0 \end{array} \right] \\ .2 = \left[\begin{array}{l} Q(x) = 4x - 4 \\ R(x) = 3x^3 + 4x^2 - 3x \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 5x - 6 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + x^2 - 5x + 12 \\ R(x) = -39 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 4x^3 - 4x \\ R(x) = 4x + 5 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 5 \\ R(x) = 0 \end{array} \right] \end{array} \right]$$

[illegible]

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 3x^2 + 4x + 2] & .2 = [p(x) - q(x) = -x^2 - 4x + 8] \\ .3 = [q(x) - p(x) = x^2 + 4x - 8] & .4 = [mp(x) - nq(x) = -2x^2 - 12x + 29] \\ .5 = [p(x)q(x) = 2x^4 + 4x^3 + 7x^2 + 20x - 15] & .6 = [[p(x)]^2 = x^4 + 10x^2 + 25] \end{array} \right]$$

$$Ans4 = [a + b = 9, a b = 8], \quad , \quad Ans5 = [a = 1, b = 5, a b = 5]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 3x^4 + 2x^3 - 2x^2 + 4 \\ R(x) = 4 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 4x - 3 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 - 4x \\ R(x) = 8x - 3 \end{array} \right] \end{array} \right] \left[\begin{array}{l} .2 = \left[\begin{array}{l} Q(x) = 3x + 2 \\ R(x) = -2x^3 + 4x + 4 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 8x^2 + 25x + 74 \\ R(x) = 218 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 6 \\ R(x) = 4 \end{array} \right] \end{array} \right]$$

[illegible]

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 5x^2 + 5x + 2] & .2 = [p(x) - q(x) = -3x^2 - 5x] \\ .3 = [q(x) - p(x) = 3x^2 + 5x] & .4 = [mp(x) - nq(x) = -3x^2 - 10x + 3] \\ .5 = [p(x)q(x) = 4x^4 + 5x^3 + 5x^2 + 5x + 1] & .6 = [[p(x)]^2 = x^4 + 2x^2 + 1] \end{array} \right]$$

$$Ans4 = [a + b = 3, a b = -10], \quad , \quad Ans5 = [a = -7, b = 3, a b = -21]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 4x^3 + 2x^2 - 2x + 1 \\ R(x) = 3 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 4x + 2 \\ R(x) = -2x^3 + x^2 + 3 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 7x - 5 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 3x^2 + 4x + 6 \\ R(x) = 13 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 + 3x \\ R(x) = 3x + 4 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 2 \\ R(x) = 3 \end{array} \right] \end{array} \right]$$

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$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 2x^4 + 2x^3 + 3x^2 + 4x - 4 \\ R(x) = -2 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 7x + 5 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 4x^3 + 12x \\ R(x) = 36x - 3 \end{array} \right] \end{array} \right] \left[\begin{array}{l} .2 = \left[\begin{array}{l} Q(x) = 2x + 2 \\ R(x) = 3x^3 + 4x^2 - 4x - 2 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 3x^2 - 4x + 6 \\ R(x) = -16 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = 5 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 4x^2 + 5x - 6] & .2 = [p(x) - q(x) = -2x^2 - 5x + 2] \\ .3 = [q(x) - p(x) = 2x^2 + 5x - 2] & .4 = [mp(x) - nq(x) = -5x^2 - 15x + 4] \\ .5 = [p(x)q(x) = 3x^4 + 5x^3 - 10x^2 - 10x + 8] & .6 = [[p(x)]^2 = x^4 - 4x^2 + 4] \end{array} \right]$$

$$Ans4 = [a + b = 5, a b = -24], \quad , \quad Ans5 = [a = -4, b = 3, a b = -12]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 5x^4 + 4x^2 + 4x + 4 \\ R(x) = 2 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 6x - 5 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 4x^3 + 12x \\ R(x) = 36x - 3 \end{array} \right] \end{array} \right] \left[\begin{array}{l} .2 = \left[\begin{array}{l} Q(x) = 5x \\ R(x) = 4x^3 + 4x^2 + 4x + 2 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 8x^2 + 21x + 63 \\ R(x) = 193 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = -8 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 4x^3 + 2x^2 + 4x - 2 \\ R(x) = 3x + 1 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 4x^2 + 2x + 4 \\ R(x) = -2x^2 + 3x + 1 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = x - 7 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + x^2 - x + 1 \\ R(x) = -1 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 + 9x \\ R(x) = 27x - 4 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = -1 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = x^4 + x^2 + 2x \\ R(x) = 2 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = x^2 + 1 \\ R(x) = 2x^2 + 2 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -3x + 4 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 - 2x^2 + 8x - 23 \\ R(x) = 71 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 - 2x \\ R(x) = 2x + 3 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 \\ R(x) = 5 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 2x^3 + 4x^2 - 3x - 1 \\ R(x) = 3x + 4 \end{array} \right] \\ .2 = \left[\begin{array}{l} Q(x) = 2x + 4 \\ R(x) = -3x^3 - x^2 + 3x + 4 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 5x - 6 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 2x^2 - 4x + 8 \\ R(x) = -19 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 + 2x \\ R(x) = 2x - 5 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 8 \\ R(x) = 21 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 5x^3 - 3x^2 - 3x - 4 \\ R(x) = -1 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 5x^2 - 3x - 3 \\ R(x) = -4x^2 - 1 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -4x - 5 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 - 2x^2 + 5x - 14 \\ R(x) = 41 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 + 6x \\ R(x) = 12x + 2 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 5 \\ R(x) = 10 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 4x^2 - 4x + 1] & .2 = [p(x) - q(x) = -2x^2 + 4x - 9] \\ .3 = [q(x) - p(x) = 2x^2 - 4x + 9] & .4 = [mp(x) - nq(x) = -9x^2 + 16x - 32] \\ .5 = [p(x)q(x) = 3x^4 - 4x^3 - 7x^2 + 16x - 20] & .6 = [[p(x)]^2 = x^4 - 8x^2 + 16] \end{array} \right]$$

$$Ans4 = [a + b = -7, a b = -8], \quad , \quad Ans5 = [a = -1, b = 6, a b = -6]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 4x^4 + 2x^3 + 2x^2 + 4 \\ R(x) = -3 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 4x^2 + 2x + 2 \\ R(x) = 4x - 3 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 3x + 1 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 8x^2 + 20x + 58 \\ R(x) = 172 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 - 3x \\ R(x) = 3x + 4 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 2 \\ R(x) = 2 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 3x^2 - x - 2] & .2 = [p(x) - q(x) = -x^2 + x - 6] \\ .3 = [q(x) - p(x) = x^2 - x + 6] & .4 = [mp(x) - nq(x) = x^2 + 2x - 24] \\ .5 = [p(x)q(x) = 2x^4 - x^3 - 6x^2 + 4x - 8] & .6 = [[p(x)]^2 = x^4 - 8x^2 + 16] \end{array} \right]$$

$$Ans4 = [a + b = -14, a b = 45], \quad , \quad Ans5 = [a = -5, b = 2, a b = -10]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 3x^3 - 4x^2 - x \\ R(x) = -4x - 4 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 3x - 4 \\ R(x) = -x^3 - 4x - 4 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -2x - 3 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 8x^2 + 22x + 63 \\ R(x) = 194 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 + 3x \\ R(x) = 3x - 2 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 6 \\ R(x) = 20 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 3x^2 + 3x + 3] & .2 = [p(x) - q(x) = -x^2 - 3x + 5] \\ .3 = [q(x) - p(x) = x^2 + 3x - 5] & .4 = [mp(x) - nq(x) = -6x^2 - 15x + 21] \\ .5 = [p(x)q(x) = 2x^4 + 3x^3 + 7x^2 + 12x - 4] & .6 = [[p(x)]^2 = x^4 + 8x^2 + 16] \end{array} \right]$$

$$Ans4 = [a + b = -12, a b = 32], \quad , \quad Ans5 = [a = -1, b = 5, a b = -5]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 5x^3 + 4x^2 - 3x + 1 \\ R(x) = 4x \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -7x - 4 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 + 3x \\ R(x) = 3x - 4 \end{array} \right] \end{array} \right] \left[\begin{array}{l} .2 = \left[\begin{array}{l} Q(x) = 5x + 4 \\ R(x) = -3x^3 + x^2 + 4x \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 8x^2 + 23x + 70 \\ R(x) = 215 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = 3 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 5x^3 - 4x^2 - 2x + 1 \\ R(x) = -2x \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -7x + 7 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 4x^3 + 4x \\ R(x) = 4x - 5 \end{array} \right] \end{array} \right] \quad \left[\begin{array}{l} .2 = \left[\begin{array}{l} Q(x) = 5x^2 - 4x - 2 \\ R(x) = x^2 - 2x \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + x^2 - 4x + 12 \\ R(x) = -26 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 1 \\ R(x) = 0 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 5x^2 - 4x + 6] & .2 = [p(x) - q(x) = -3x^2 + 4x - 4] \\ .3 = [q(x) - p(x) = 3x^2 - 4x + 4] & .4 = [mp(x) - nq(x) = -3x^2 + 8x - 5] \\ .5 = [p(x)q(x) = 4x^4 - 4x^3 + 9x^2 - 4x + 5] & .6 = [[p(x)]^2 = x^4 + 2x^2 + 1] \end{array} \right]$$

$$Ans4 = [a + b = 7, a b = -8], \quad , \quad Ans5 = [a = 7, b = 4, a b = 28]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = x^3 - 3x^2 + x - 1 \\ R(x) = -2 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = x - 4 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 + 2x \\ R(x) = 2x - 3 \end{array} \right] \end{array} \right] \quad \left[\begin{array}{l} .2 = \left[\begin{array}{l} Q(x) = x - 3 \\ R(x) = x^3 - x^2 - 2 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 - 2x^2 + 6x - 19 \\ R(x) = 59 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 2 \\ R(x) = -3 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 3x^3 + 3x^2 + x + 2 \\ R(x) = -3x - 4 \end{array} \right] \\ .2 = \left[\begin{array}{l} Q(x) = 3x^2 + 3x + 1 \\ R(x) = 2x^2 - 3x - 4 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -3x - 4 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 2x^2 - 3 \\ R(x) = 10 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 + 6x \\ R(x) = 18x - 5 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 \\ R(x) = 3 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = x^3 + 3x^2 - 4x + 1 \\ R(x) = x + 3 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = x + 3 \\ R(x) = -4x^3 + x^2 + x + 3 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -7x + 6 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 4x^2 + 10x + 21 \\ R(x) = 38 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 + 6x \\ R(x) = 18x - 3 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 3 \\ R(x) = -4 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 3x^2 - 3x - 5] & .2 = [p(x) - q(x) = -x^2 + 3x + 3] \\ .3 = [q(x) - p(x) = x^2 - 3x - 3] & .4 = [mp(x) - nq(x) = -7x^2 + 15x + 17] \\ .5 = [p(x)q(x) = 2x^4 - 3x^3 - 6x^2 + 3x + 4] & .6 = [[p(x)]^2 = x^4 - 2x^2 + 1] \end{array} \right]$$

$$Ans4 = [a + b = 4, a b = -32], \quad , \quad Ans5 = [a = -3, b = 7, a b = -21]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 4x^4 + 4 \\ R(x) = 3 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -3x - 2 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 + 6x \\ R(x) = 18x - 3 \end{array} \right] \end{array} \right] \quad \left[\begin{array}{l} .2 = \left[\begin{array}{l} Q(x) = 4x^2 \\ R(x) = 4x + 3 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 7x^2 + 12x + 24 \\ R(x) = 50 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 \\ R(x) = -3 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 4x^2 + 3x - 3] & .2 = [p(x) - q(x) = -2x^2 - 3x - 1] \\ .3 = [q(x) - p(x) = 2x^2 + 3x + 1] & .4 = [mp(x) - nq(x) = -11x^2 - 15x - 3] \\ .5 = [p(x)q(x) = 3x^4 + 3x^3 - 7x^2 - 6x + 2] & .6 = [[p(x)]^2 = x^4 - 4x^2 + 4] \end{array} \right]$$

$$Ans4 = [a + b = -8, a b = 7], \quad , \quad Ans5 = [a = 7, b = 3, a b = 21]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 4x^3 - 2x^2 - x + 4 \\ R(x) = 4x + 4 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 4x - 2 \\ R(x) = -x^3 + 4x^2 + 4x + 4 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 5x + 3 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 8x^2 + 21x + 61 \\ R(x) = 186 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 - 2x \\ R(x) = 2x + 5 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = -3 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = x^3 - 3x^2 - 2 \\ R(x) = -2x - 2 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = x - 3 \\ R(x) = -2x^2 - 2x - 2 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -3x - 4 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 5x^2 + 7x + 14 \\ R(x) = 24 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 + 6x \\ R(x) = 18x - 5 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 6 \\ R(x) = 0 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 5x^3 + x^2 - 4x - 3 \\ R(x) = x - 2 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 5x + 1 \\ R(x) = -4x^3 - 3x^2 + x - 2 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -4x + 4 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 4x - 11 \\ R(x) = 18 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 - 6x \\ R(x) = 18x - 5 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 6 \\ R(x) = 15 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 4x^4 - 3x^3 - 3x - 2 \\ R(x) = -3 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 4x^2 - 3x \\ R(x) = -3x^2 - 2x - 3 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 2x + 2 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 6x^2 + 16x + 50 \\ R(x) = 153 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 - 6x \\ R(x) = 12x - 2 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 7 \\ R(x) = 16 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 4x^3 + 2x^2 - 4x + 4 \\ R(x) = 3 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 4x^2 + 2x - 4 \\ R(x) = 4x^2 + 3 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 6x + 3 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 3x^2 + 7x + 13 \\ R(x) = 27 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 + 2x \\ R(x) = 2x + 5 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = -2 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 5x^2 + 3x + 4] & .2 = [p(x) - q(x) = -3x^2 - 3x + 6] \\ .3 = [q(x) - p(x) = 3x^2 + 3x - 6] & .4 = [mp(x) - nq(x) = -5x^2 - 6x + 17] \\ .5 = [p(x)q(x) = 4x^4 + 3x^3 + 19x^2 + 15x - 5] & .6 = [[p(x)]^2 = x^4 + 10x^2 + 25] \end{array} \right]$$

$$Ans4 = [a + b = -3, a b = -4], \quad , \quad Ans5 = [a = -3, b = 6, a b = -18]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 4x^3 - 4x^2 - 3x + 2 \\ R(x) = 2 \end{array} \right] \\ .2 = \left[\begin{array}{l} Q(x) = 4x - 4 \\ R(x) = -3x^3 + 2x^2 + 2 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 7x + 4 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 3x^2 + 6x + 14 \\ R(x) = 29 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 4x^3 + 4x \\ R(x) = 4x - 5 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 6 \\ R(x) = 0 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = x^4 + 3x^3 - 3x^2 + 2x + 4 \\ R(x) = 0 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -7x - 4 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 4x^3 - 12x \\ R(x) = 36x + 5 \end{array} \right] \end{array} \right] \quad \left[\begin{array}{l} .2 = \left[\begin{array}{l} Q(x) = x^2 + 3x - 3 \\ R(x) = 2x^2 + 4x \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 8x^2 + 24x + 73 \\ R(x) = 224 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = 9 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 4x^2 - x] & .2 = [p(x) - q(x) = -2x^2 + x + 4] \\ .3 = [q(x) - p(x) = 2x^2 - x - 4] & .4 = [mp(x) - nq(x) = -7x^2 + 4x + 18] \\ .5 = [p(x)q(x) = 3x^4 - x^3 + 4x^2 - 2x - 4] & .6 = [[p(x)]^2 = x^4 + 4x^2 + 4] \end{array} \right]$$

$$Ans4 = [a + b = 7, a \ b = 6], \quad , \quad Ans5 = [a = 2, b = 5, a \ b = 10]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 2x^3 - 4x^2 - 3x - 1 \\ R(x) = -2x \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 2x - 4 \\ R(x) = -3x^3 - x^2 - 2x \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = x + 1 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 - x + 2 \\ R(x) = -3 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 4x^3 - 12x \\ R(x) = 36x - 3 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 2 \\ R(x) = -12 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 5x^2 - 5x + 6] & .2 = [p(x) - q(x) = -3x^2 + 5x + 2] \\ .3 = [q(x) - p(x) = 3x^2 - 5x - 2] & .4 = [mp(x) - nq(x) = -16x^2 + 25x + 6] \\ .5 = [p(x)q(x) = 4x^4 - 5x^3 + 18x^2 - 20x + 8] & .6 = [[p(x)]^2 = x^4 + 8x^2 + 16] \end{array} \right]$$

$$Ans4 = [a + b = 2, a b = -24], \quad , \quad Ans5 = [a = -7, b = 4, a b = -28]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 5x^3 - 3x - 1 \\ R(x) = -4x + 2 \end{array} \right] \\ .2 = \left[\begin{array}{l} Q(x) = 5x \\ R(x) = -3x^3 - x^2 - 4x + 2 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = x + 3 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 3x^2 - 3x + 3 \\ R(x) = -1 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 2x^3 + 6x \\ R(x) = 18x + 5 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 1 \\ R(x) = -6 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 4x^2 - 3x - 2] & .2 = [p(x) - q(x) = -2x^2 + 3x - 6] \\ .3 = [q(x) - p(x) = 2x^2 - 3x + 6] & .4 = [mp(x) - nq(x) = -4x^2 + 9x - 26] \\ .5 = [p(x)q(x) = 3x^4 - 3x^3 - 10x^2 + 12x - 8] & .6 = [[p(x)]^2 = x^4 - 8x^2 + 16] \end{array} \right]$$

$$Ans4 = [a + b = -2, a b = -8], \quad , \quad Ans5 = [a = 1, b = 3, a b = 3]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = x^3 - x^2 - 4x + 1 \\ R(x) = x + 4 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = x - 1 \\ R(x) = -4x^3 + x^2 + x + 4 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -x - 1 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 4x^2 + 11x + 19 \\ R(x) = 36 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 4x^3 - 8x \\ R(x) = 16x - 5 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = 2 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 5x^2 + 2x + 1] & .2 = [p(x) - q(x) = -3x^2 - 2x + 7] \\ .3 = [q(x) - p(x) = 3x^2 + 2x - 7] & .4 = [mp(x) - nq(x) = -5x^2 - 4x + 18] \\ .5 = [p(x)q(x) = 4x^4 + 2x^3 + 13x^2 + 8x - 12] & .6 = [[p(x)]^2 = x^4 + 8x^2 + 16] \end{array} \right]$$

$$Ans4 = [a + b = -5, a \cdot b = 6], \quad , \quad Ans5 = [a = 5, b = 2, a \cdot b = 10]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 3x^4 - 4x^3 - 3x^2 - 3x + 3 \\ R(x) = -4 \end{array} \right] \\ .2 = \left[\begin{array}{l} Q(x) = 3x - 4 \\ R(x) = -3x^3 - 3x^2 + 3x - 4 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 2x - 6 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 2x^2 - 6x + 8 \\ R(x) = -14 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 - 3x \\ R(x) = 3x + 5 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 6 \\ R(x) = 9 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 5x^2 - 5x - 1] & .2 = [p(x) - q(x) = -3x^2 + 5x + 7] \\ .3 = [q(x) - p(x) = 3x^2 - 5x - 7] & .4 = [mp(x) - nq(x) = -7x^2 + 15x + 27] \\ .5 = [p(x)q(x) = 4x^4 - 5x^3 + 8x^2 - 15x - 12] & .6 = [[p(x)]^2 = x^4 + 6x^2 + 9] \end{array} \right]$$

$$Ans4 = [a + b = -9, a b = 14], \quad , \quad Ans5 = [a = 3, b = 2, a b = 6]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \begin{bmatrix} Q(x) = 3x^3 + 3x \\ R(x) = -3x - 2 \end{bmatrix} & .2 = \begin{bmatrix} Q(x) = 3x^2 + 3 \\ R(x) = -3x - 2 \end{bmatrix} \\ .3 = \begin{bmatrix} Q(x) = x \\ R(x) = -5x + 1 \end{bmatrix} & .4 = \begin{bmatrix} Q(x) = x^3 + 6x^2 + 8x + 16 \\ R(x) = 35 \end{bmatrix} \\ .5 = \begin{bmatrix} Q(x) = 3x^3 + 3x \\ R(x) = 3x + 2 \end{bmatrix} & .6 = \begin{bmatrix} Q(x) = x^3 \\ R(x) = 5 \end{bmatrix} \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 3x^3 + 2x^2 + 2x + 1 \\ R(x) = 3x + 1 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 3x + 2 \\ R(x) = 2x^3 + x^2 + 3x + 1 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 2x + 7 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 7x^2 + 18x + 57 \\ R(x) = 170 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 + 6x \\ R(x) = 12x - 5 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = 2 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 2x^4 - 4x^3 - x^2 \\ R(x) = 4 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -6x + 3 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 + 9x \\ R(x) = 27x + 2 \end{array} \right] \end{array} \right] \quad \left[\begin{array}{l} .2 = \left[\begin{array}{l} Q(x) = 2x - 4 \\ R(x) = -x^3 + 4 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + 4x^2 + 10x + 30 \\ R(x) = 89 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 8 \\ R(x) = 20 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 4x^3 + 4x^2 - 3x - 2 \\ R(x) = 2x + 3 \end{array} \right] \\ .2 = \left[\begin{array}{l} Q(x) = 4x + 4 \\ R(x) = -3x^3 - 2x^2 + 2x + 3 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 6x + 1 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 + x - 5 \\ R(x) = 16 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 + 9x \\ R(x) = 27x - 4 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = -13 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 4x^2 - 5x + 3] & .2 = [p(x) - q(x) = -2x^2 + 5x + 1] \\ .3 = [q(x) - p(x) = 2x^2 - 5x - 1] & .4 = [mp(x) - nq(x) = -11x^2 + 25x + 3] \\ .5 = [p(x)q(x) = 3x^4 - 5x^3 + 7x^2 - 10x + 2] & .6 = [[p(x)]^2 = x^4 + 4x^2 + 4] \end{array} \right]$$

$$Ans4 = [a + b = 4, a b = -21], \quad , \quad Ans5 = [a = 4, b = 1, a b = 4]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = x^3 - 4x^2 + 4x - 2 \\ R(x) = 4 \end{array} \right] \\ .2 = \left[\begin{array}{l} Q(x) = x - 4 \\ R(x) = 4x^3 - 2x^2 + 4 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -6x + 6 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 - 2x^2 + 6x - 14 \\ R(x) = 43 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 - 6x \\ R(x) = 12x - 2 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 5 \\ R(x) = 0 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 5x^2 + x - 2] & .2 = [p(x) - q(x) = -3x^2 - x + 4] \\ .3 = [q(x) - p(x) = 3x^2 + x - 4] & .4 = [mp(x) - nq(x) = -7x^2 - 3x + 14] \\ .5 = [p(x)q(x) = 4x^4 + x^3 + x^2 + x - 3] & .6 = [[p(x)]^2 = x^4 + 2x^2 + 1] \end{array} \right]$$

$$Ans4 = [a + b = 3, a b = -4], \quad , \quad Ans5 = [a = 5, b = 1, a b = 5]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 4x^3 - 3x^2 + 2x \\ R(x) = 4 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 4x^2 - 3x + 2 \\ R(x) = 4 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 5x + 5 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 - x^2 + 4x - 12 \\ R(x) = 25 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 + 3x \\ R(x) = 3x + 2 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 1 \\ R(x) = -8 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 5x^2 + 5x - 5] & .2 = [p(x) - q(x) = -3x^2 - 5x - 3] \\ .3 = [q(x) - p(x) = 3x^2 + 5x + 3] & .4 = [mp(x) - nq(x) = -5x^2 - 10x - 10] \\ .5 = [p(x)q(x) = 4x^4 + 5x^3 - 17x^2 - 20x + 4] & .6 = [[p(x)]^2 = x^4 - 8x^2 + 16] \end{array} \right]$$

$Ans4 = [a + b = -6, a b = -16], \quad , \quad Ans5 = [a = -7, b = 3, a b = -21]$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 4x^3 + 2x^2 + 3x \\ R(x) = 4x - 1 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 4x + 2 \\ R(x) = 3x^3 + 4x - 1 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 2x - 3 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 7x^2 + 15x + 30 \\ R(x) = 57 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 - 3x \\ R(x) = 3x - 4 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 6 \\ R(x) = 9 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 5x^3 - x^2 + 2x \\ R(x) = -x + 3 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 5x - 1 \\ R(x) = 2x^3 - x + 3 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = x - 3 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 - x^2 + 3x - 9 \\ R(x) = 31 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 - 3x \\ R(x) = 3x + 2 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 4 \\ R(x) = -1 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 5x^2 - x - 6] & .2 = [p(x) - q(x) = -3x^2 + x + 4] \\ .3 = [q(x) - p(x) = 3x^2 - x - 4] & .4 = [mp(x) - nq(x) = -5x^2 + 2x + 7] \\ .5 = [p(x)q(x) = 4x^4 - x^3 - 9x^2 + x + 5] & .6 = [[p(x)]^2 = x^4 - 2x^2 + 1] \end{array} \right]$$

$$Ans4 = [a + b = -8, a b = 12], \quad , \quad Ans5 = [a = 5, b = 4, a b = 20]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 3x^3 + 4x^2 + 2x + 2 \\ R(x) = 1 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 3x^2 + 4x + 2 \\ R(x) = 2x^2 + 1 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = -6x + 7 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 - 2x^2 + 8x - 25 \\ R(x) = 74 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 4x^3 - 4x \\ R(x) = 4x - 5 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 6 \\ R(x) = 14 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 3x^4 - x^2 - 2x - 2 \\ R(x) = 2 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 3x^2 - 1 \\ R(x) = -2x^2 - 2x + 2 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 6x + 2 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 - 2x + 9 \\ R(x) = -24 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 + 9x \\ R(x) = 27x + 2 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 5 \\ R(x) = 6 \end{array} \right] \end{array} \right]$$

$$Ans2 = \left[\begin{array}{ll} .1 = [p(x) + q(x) = 4x^2 - x - 7] & .2 = [p(x) - q(x) = -2x^2 + x + 1] \\ .3 = [q(x) - p(x) = 2x^2 - x - 1] & .4 = [mp(x) - nq(x) = -11x^2 + 5x + 8] \\ .5 = [p(x)q(x) = 3x^4 - x^3 - 13x^2 + 3x + 12] & .6 = [[p(x)]^2 = x^4 - 6x^2 + 9] \end{array} \right]$$

$$Ans4 = [a + b = -4, a b = 3], \quad , \quad Ans5 = [a = 2, b = 7, a b = 14]$$

$$Ans7 = \left[\begin{array}{l} .1 = \left[\begin{array}{l} Q(x) = 4x^4 + 4x^3 + 3x^2 + 4x - 1 \\ R(x) = 0 \end{array} \right] \\ .2 = \left[\begin{array}{l} Q(x) = 4x + 4 \\ R(x) = 3x^3 + 4x^2 - x \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 6x - 6 \end{array} \right] \\ .4 = \left[\begin{array}{l} Q(x) = x^3 - 2x + 7 \\ R(x) = -10 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 4x^3 - 4x \\ R(x) = 4x - 5 \end{array} \right] \\ .6 = \left[\begin{array}{l} Q(x) = x^3 + 5 \\ R(x) = 5 \end{array} \right] \end{array} \right]$$

$$Ans7 = \left[\begin{array}{ll} .1 = \left[\begin{array}{l} Q(x) = 5x^3 + 3x^2 - 4x \\ R(x) = 3 \end{array} \right] & .2 = \left[\begin{array}{l} Q(x) = 5x + 3 \\ R(x) = -4x^3 + 3 \end{array} \right] \\ .3 = \left[\begin{array}{l} Q(x) = x \\ R(x) = 3x + 7 \end{array} \right] & .4 = \left[\begin{array}{l} Q(x) = x^3 + 3x^2 + 3x + 6 \\ R(x) = 8 \end{array} \right] \\ .5 = \left[\begin{array}{l} Q(x) = 3x^3 - 9x \\ R(x) = 27x + 2 \end{array} \right] & .6 = \left[\begin{array}{l} Q(x) = x^3 + 3 \\ R(x) = -14 \end{array} \right] \end{array} \right]$$

[illegible]