



Polynomials Division Tutoring Sheet #1 – Solution

1. Find the quotient and the remainder of division of the following

$$\begin{array}{r} 2x+1 \\ x-2 \overline{) 2x^2 - 3x - 1} \\ \underline{-(2x^2 - 4x)} \\ x-1 \\ \underline{-(x-2)} \\ 1 \end{array}$$

a. $Q = 2x+1$, $R = 1$

$$\begin{array}{r} 8x \\ x^2 + 0x + 4 \overline{) 8x^3 + 0x^2 + 0x + 0} \\ \underline{-(8x^3 + 0x^2 + 32x)} \\ -32x + 0 \end{array}$$

b. $Q = 8x$, $R = -32x$

$$\begin{array}{r} x^2 - 5x + 3 \\ x-2 \overline{) x^3 - 7x^2 + 13x + 3} \\ \underline{-(x^3 - 2x^2)} \\ -5x^2 + 13x + 3 \\ \underline{-(-5x^2 + 10x)} \\ 3x + 3 \\ \underline{-(3x - 6)} \\ 9 \end{array}$$

c. $Q = x^2 - 5x + 3$, $R = 9$

$$\begin{array}{r} 2x^2 + 3x + 6 \\ 2x-3 \overline{) 4x^3 + 0x^2 + 3x - 18} \\ \underline{-(4x^3 - 6x^2)} \\ 6x^2 + 3x - 18 \\ \underline{-(6x^2 - 9x)} \\ 12x - 18 \\ \underline{-(12x - 18)} \\ 0 \end{array}$$

d. $Q = 2x^2 + 3x + 6$, $R = 0$

$$\begin{array}{r} x^2 - x - 2 \\ x+1 \overline{) x^3 + 0x^2 - 3x - 2} \\ \underline{-(x^3 + x^2)} \\ -x^2 - 3x - 2 \\ \underline{-(-x^2 - x)} \\ -2x - 2 \\ \underline{-(-2x - 2)} \\ 0 \end{array}$$

e. $Q = x^2 - x - 2$, $R = 0$