1. Divide.

\[(2x^2 + 10x + 9) \div (x + 2)\]

Your answer should give the quotient and the remainder.

Quotient:

Remainder:

2. Divide.

\[(5x^2 + 40x + 37) \div (x + 7)\]

Your answer should give the quotient and the remainder.

Quotient:

Remainder:
3. Divide.

\[(18x^3 + 33x^2 + 18x + 2) \div (6x - 1)\]

Your answer should give the quotient and the remainder.

Quotient:

Remainder:

4. Divide.

\[(20x^3 + 17x^2 + 5x + 3) \div (5x - 2)\]

Your answer should give the quotient and the remainder.

Quotient:

Remainder:

5. Divide.

\[(11x - 6x^3 + 3 - 15x^4 - 4x^2) \div (-3x^2 + 1)\]

Write your answer in the following form: Quotient + \[\text{Remainder} \div -3x^2 + 1\]

\[
\frac{11x - 6x^3 + 3 - 15x^4 - 4x^2}{-3x^2 + 1} = \square + \square
\]
6. Divide.

\[(4x^3 + 11x - 6x^4 - 3) \div (-3x^2 + 2x + 3)\]

Write your answer in the following form: Quotient + \(\frac{\text{Remainder}}{-3x^2 + 2x + 3}\).

\[
\begin{array}{c|cccc}
  & 4 & 11 & -6 & -3 \\
-3 & 1 & 0 & -3 & \\
\hline
  & 4 & 11 & -3 & -6 \\
\end{array}
\]

7. Use synthetic division to find the quotient and remainder when \(x^3 + 6x^2 - 8x - 7\) is divided by \(x + 7\). Specifically, complete the synthetic division table below, and write your answer in the following form: \(\text{Quotient} + \frac{\text{Remainder}}{x + 7}\).

\[
\begin{array}{c|ccccc}
-7 & 1 & 6 & -8 & -7 \\
\hline
 & & & & & \\
\end{array}
\]

\[
\frac{x^3 + 6x^2 - 8x - 7}{x + 7} = \square + \frac{\square}{x + 7}
\]
8. Use synthetic division to find the quotient and remainder when \(2x^4 + 10x^3 + 9x^2 - 7x + 5\) is divided by \(x + 3\). Specifically, complete the synthetic division table below, and write your answer in the following form: \(\text{Quotient} + \frac{\text{Remainder}}{x + 3}\).

\[
\begin{array}{c|cccc}
-3 & 2 & 10 & 9 & -7 & 5 \\
 & & & & & \\
\hline
& & & & & \\
\end{array}
\]

\[
\frac{2x^4 + 10x^3 + 9x^2 - 7x + 5}{x + 3} = \square + \frac{\square}{x + 3}
\]

9. Use the remainder theorem to find \(P(2)\) for \(P(x) = x^4 - 3x^3 - 4x^2 + 7\).

Specifically, give the quotient and the remainder for the associated division and the value of \(P(2)\).