

3.

Which of the following is the Quotient of  $-3u^6 + 9u^5 - 3u^4 - 11u^3 + 9u^2 - 5u + 2$  divided by  $(-u - 1)u^2$

$$\begin{array}{r}
 \phantom{(-u-1)u^2} \phantom{(-3)u^6} \phantom{+(9)u^5} \phantom{+(-3)u^4} + (3u^3) + (-12u^2) + (15u) + (-4) \\
 \hline
 (-u-1)u^2 \phantom{(-3)u^6} \phantom{+(9)u^5} \phantom{+(-3)u^4} \phantom{+(-11)u^3} \phantom{+(9)u^2} \phantom{+(-5)u} \phantom{+(2)} \\
 \phantom{(-u-1)u^2} (-3u^6) \phantom{+(-3)u^5} \phantom{+(12)u^5} \phantom{+(-3)u^4} \phantom{+(-11)u^3} \phantom{+(9)u^2} \phantom{+(-5)u} \phantom{+(2)} \\
 \phantom{(-u-1)u^2} \phantom{(-3)u^6} (-3u^5) \phantom{+(12)u^5} \phantom{+(-3)u^4} \phantom{+(-11)u^3} \phantom{+(9)u^2} \phantom{+(-5)u} \phantom{+(2)} \\
 \phantom{(-u-1)u^2} \phantom{(-3)u^6} \phantom{(-3)u^5} (12u^5) \phantom{+(-3)u^4} \phantom{+(-11)u^3} \phantom{+(9)u^2} \phantom{+(-5)u} \phantom{+(2)} \\
 \phantom{(-u-1)u^2} \phantom{(-3)u^6} \phantom{(-3)u^5} \phantom{(12)u^5} (12u^4) \phantom{+(-11)u^3} \phantom{+(9)u^2} \phantom{+(-5)u} \phantom{+(2)} \\
 \phantom{(-u-1)u^2} \phantom{(-3)u^6} \phantom{(-3)u^5} \phantom{(12)u^5} \phantom{(12)u^4} (-15u^4) \phantom{+(-11)u^3} \phantom{+(9)u^2} \phantom{+(-5)u} \phantom{+(2)} \\
 \phantom{(-u-1)u^2} \phantom{(-3)u^6} \phantom{(-3)u^5} \phantom{(12)u^5} \phantom{(12)u^4} \phantom{(-15)u^4} (-15u^3) \phantom{+(9)u^2} \phantom{+(-5)u} \phantom{+(2)} \\
 \phantom{(-u-1)u^2} \phantom{(-3)u^6} \phantom{(-3)u^5} \phantom{(12)u^5} \phantom{(12)u^4} \phantom{(-15)u^4} \phantom{(-15)u^3} (4u^3) \phantom{+(9)u^2} \phantom{+(-5)u} \phantom{+(2)} \\
 \phantom{(-u-1)u^2} \phantom{(-3)u^6} \phantom{(-3)u^5} \phantom{(12)u^5} \phantom{(12)u^4} \phantom{(-15)u^4} \phantom{(-15)u^3} \phantom{(4)u^3} (4u^2) \phantom{+(-5)u} \phantom{+(2)} \\
 \phantom{(-u-1)u^2} \phantom{(-3)u^6} \phantom{(-3)u^5} \phantom{(12)u^5} \phantom{(12)u^4} \phantom{(-15)u^4} \phantom{(-15)u^3} \phantom{(4)u^3} \phantom{(4)u^2} (5u^2) \phantom{+(-5)u} \phantom{+(2)} \\
 \phantom{(-u-1)u^2} \phantom{(-3)u^6} \phantom{(-3)u^5} \phantom{(12)u^5} \phantom{(12)u^4} \phantom{(-15)u^4} \phantom{(-15)u^3} \phantom{(4)u^3} \phantom{(4)u^2} \phantom{(5)u^2} (-5u) \phantom{+(2)} \\
 \phantom{(-u-1)u^2} \phantom{(-3)u^6} \phantom{(-3)u^5} \phantom{(12)u^5} \phantom{(12)u^4} \phantom{(-15)u^4} \phantom{(-15)u^3} \phantom{(4)u^3} \phantom{(4)u^2} \phantom{(5)u^2} \phantom{(-5)u} (2)
 \end{array}$$

Coefficient list:

$\{3, -12, 15, -4\}$