

## Dividing Polynomials

Divide using long division. Check your answers.

1.  $(2x^2 + 7x - 5) \div (x + 1)$

To start, divide  $\frac{2x^2}{x} = 2x$

Then, multiply  $2x(x + 1) = 2x^2 + 2x$ .

$$\begin{array}{r} 2x \\ x + 1 \overline{) 2x^2 + 7x - 5} \\ \underline{2x^2 + 2x} \phantom{- 5} \\ \phantom{2x^2 + } 5x - 5 \phantom{- 5} \end{array}$$

2.  $(x^3 + x^2 - 14x - 27) \div (x + 3)$

3.  $(2x^3 + 13x^2 + 16x + 5) \div (x + 5)$

4.  $(x^2 + 9x + 22) \div (x + 2)$

5.  $(6x^2 + 4x - 16) \div (2x - 2)$

6.  $(8x^3 + 18x^2 + 7x - 3) \div (4x - 1)$

7.  $(12x^2 + 18x - 17) \div (6x - 3)$

Determine whether each binomial is a factor of  $x^3 - 3x^2 - 4x$ .

8.  $x - 4$

9.  $x + 2$

10.  $x - 3$

11.  $x + 1$

Determine whether each binomial is a factor of  $x^3 - 9x^2 + 15x + 25$ .

12.  $x - 2$

13.  $x + 1$

14.  $x - 5$

15.  $x - 3$