

DIVIDING POLYNOMIALS

➤ **Divide by using long division.**

1)  $(x^2 + 3x - 40) \div (x - 5)$

2)  $(x^3 - 3x^2 + 2) \div (x - 3)$

3)  $(12x^2 + 13x - 14) \div (3x - 2)$

4)  $(8x^3 - 9) \div (2x - 3)$

5)  $(12x^4 - 11x^2 + 10) \div (3x^2 + 1)$

6) 
$$\frac{4 + 6x - 3x^2 + 2x^3}{2x + 1}$$

7) 
$$\frac{2 - 3x^2 + 5x^3}{x^2 + 3}$$

8) 
$$\frac{2x + 1 + 6x^2 + 9x^3}{3x^2 + 2}$$

SYNTHETIC DIVISION

➤ **Divide by using synthetic division.**

9)  $(2x^2 - 6x - 8) \div (x + 1)$

10)  $(4x^2 - 8) \div (x - 2)$

11)  $(x^3 - 4x^2 + x + 6) \div (x + 1)$

12)  $\frac{2x^3 - x^2 - 10x + 15 + x^4}{x - 2}$

13)  $\frac{-30 - 3x^3 + x^4}{x + 2}$

14)  $\frac{x^3 + 125}{x + 5}$

EVALUATING POLYNOMIALS USING SYNTHETIC DIVISION

➤ **Use the Remainder Theorem to evaluate each of the polynomials.**

15)  $P(x) = 2x^2 - 3x - 1; P(3)$

16)  $Q(x) = x^3 - 2x^2 + 3x - 1; Q(4)$

17)  $F(x) = 2x^4 - x^3 + 2x - 5; F(-3)$

18)  $L(x) = x^5 - 4x^3 - 2x^2 + 5x - 2; L(2)$