

# HOMWORK:

## SYNTHETIC SUBSTITUTION, MODELING

NAME: \_\_\_\_\_ DAY 3 DUE: \_\_\_\_\_

Evaluate with synthetic substitution.

1.  $f(x) = 3x^4 - x^3 - 3x + 10$  for  $x = 2$

2.  $f(x) = 4x^3 - 2x^2 - 14x + 30$  for  $x = -3$

### Given Factors, Identify the Zeros

3.  $(x - 2)(x - 5)$  \_\_\_\_\_

4.  $(x - 3)^2$  \_\_\_\_\_

5.  $3x(x + 1)$  \_\_\_\_\_

6.  $2x^4(x + 10)$  \_\_\_\_\_

7.  $(2x - 5)(4x + 1)$  \_\_\_\_\_

### Given a List of Zeros, write as a List of Factors

8. 2 \_\_\_\_\_

9.  $x = -5$  \_\_\_\_\_

10.  $x = 4, -3$  \_\_\_\_\_

11.  $x = \pm 8$  \_\_\_\_\_

12.  $x = \pm 4\sqrt{3}$  \_\_\_\_\_

13.  $x = \frac{3}{5}$  \_\_\_\_\_

14.  $x = -\frac{5}{3}$  \_\_\_\_\_

15.  $x = -\frac{1}{5}, 3$  \_\_\_\_\_

**Given one zero, find another other zero.**

16.  $x = 3 + 2i$  \_\_\_\_\_

17.  $x = 2 - \sqrt{7}$  \_\_\_\_\_

18.  $x = \sqrt{15}$  \_\_\_\_\_

19.  $x = -3i$  \_\_\_\_\_

20. Write the polynomial function (in factored form) with leading coefficient 1 and the following zeros:  $-2, 4, 5$

21. Write the polynomial function (in standard form) with leading coefficient 2 and the following zeros:  $10, 3i$

22. Write the polynomial function (in standard form) with leading coefficient 2 and the following zeros:  $5, -2 + \sqrt{3}$