

## SBM 2 Benchmark Review 2

Date \_\_\_\_\_ Period \_\_\_\_\_

**Factor each and find all roots.**

1)  $x^4 + 9x^2 + 8 = 0$

2)  $x^4 - 2x^3 - 5x^2 + 10x = 0$

3)  $x^3 - 6x^2 + 5x = 0$

4)  $x^6 - 4x^4 - 25x^2 + 100 = 0$

**Write a polynomial function of least degree with integral coefficients that has the given zeros.**

5)  $-3, 2 + \sqrt{7}$

6)  $3 - i, \sqrt{5}$

**Describe the end behavior of each function.**

7)  $f(x) = x^3 - 3x^2 - 1$

8)  $f(x) = -x^4 + 3x^2 - 2x$

**Factor each completely.**

9)  $216x^3 - 1$

10)  $2x^3 + 16$

11)  $256x^3 - 500$

12)  $27x^3 + 8$

**State the possible rational zeros for each function. Then find all zeros.**

13)  $f(x) = 2x^3 - 7x^2 + 2x$

14)  $f(x) = 5x^3 + 13x^2 + 4x$

15)  $f(x) = 3x^3 + 7x^2 + 4x + 4$

16)  $f(x) = 3x^3 - 7x^2 + 5x - 1$