Name _____

11-6A Lesson Master

Questions on SPUR Objectives
See Student Edition pages 792–795 for objectives.

SKILLS Objective C

In 1 and 2, a polynomial is written factored over the rational numbers. a. Give the degree of the polynomial, and b. find all zeros and their multiplicities.

1. $(x - 1)(x + 9)^3(2x - 5)$ a. _____ b. _____

2. $(3x + 1)^2(x^2 - 8x + 20)$ a. _____ b. _____

In 3 and 4, use a CAS to factor the polynomial a. over the real numbers, and b. over the complex numbers. c. List all zeros and their multiplicities.

3. $2x^3 - 7x^2 + 18x - 63$

   a. _____

   b. _____

   c. _____

4. $x^4 - 6x^3 + 10x^2 + 18x - 39$

   a. _____

   b. _____

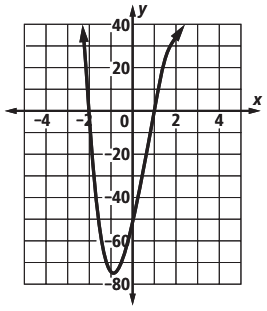
   c. _____

PROPERTIES Objective F

5. How many complex roots does the equation $3x^4 - \pi x + i = 0$ have? _____

6. P is a cubic polynomial whose only roots are 4 and –1. Write a possible equation for P in factored form. _____

7. The function $f(x) = x^4 - 9x^3 + 14x^2 + 46x - 52$ is graphed at the right. The graph shows all intercepts.

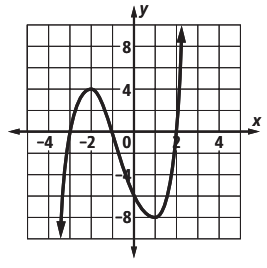


   a. How many complex zeros does f have? _____

   b. How many of the zeros are real numbers? _____

   c. How many of the zeros are nonreal numbers? _____

8. The function $f(x) = x^3 + 2x^2 - 5x + k$ is graphed at the right for $k = -6$.



   a. How many of the zeros of f are real numbers? _____

   b. Find a value of k so that f has one real zero. _____

   c. Explain why there is no real value of k where f has no real zeros.

_____

_____