Name

11-4A Lesson Master

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

SKILLS Objective C

In 1 and 2, find the exact zeros of the polynomial function with the given equation.

1. $p(x) = (x - 5)(2x + 3)$ _____

2. $g(x) = 3x(x - 1)^2(x + e)$ _____

In 3–5, a. factor the polynomial and b. find the exact zeros of the polynomial function.

3. $c(x) = x^2 - 25$ a. factored: _____ b. zeros: _____

4. $r(x) = 2x^3 - 18x^2 - 20x$ a. factored: _____ b. zeros: _____

5. $f(x) = 2x^3 - x^2 - 18x + 9$ a. factored: _____ b. zeros: _____

PROPERTIES Objective F

6. **True or False** The graph of a polynomial function P has an x-intercept at $(4, 0)$. Determine whether each statement is true or false.

   a. $P(4) = 0$. _____ b. $(x - 4)$ is a factor of $P(x)$. _____

   c. 4 is a root of $P(x)$. _____ d. 4 is a solution to $P(x) = 0$. _____

7. The only zeros of a polynomial function f are 6, 1, and –2.

   a. **Fill in the Blank** The degree of the polynomial must be at least _____.

   b. Write a possible third-degree equation for f. _____

   c. Write a possible fifth-degree equation for f. _____

   d. Write the general form of the equation for f. _____

8. Find all values of a such that $(x - 3)$ is a factor of

   a. $ax^2 - 12x$. _____ b. $x^2 - x - a$. _____

   c. $2x^2 - ax - 9$. _____ d. $2x^3 - 13x^2 + ax + 12$. _____

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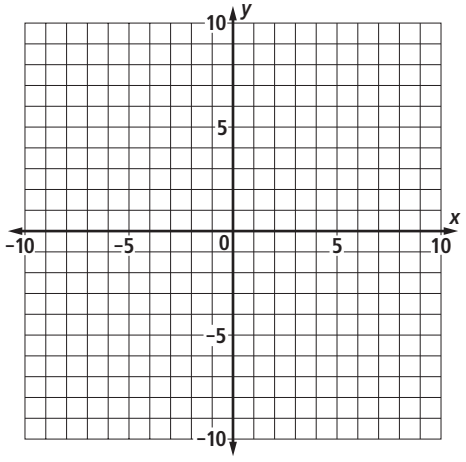
REPRESENTATIONS Objectives J, K

9. Let $h(x) = 5x^2 - 6x - 8$.

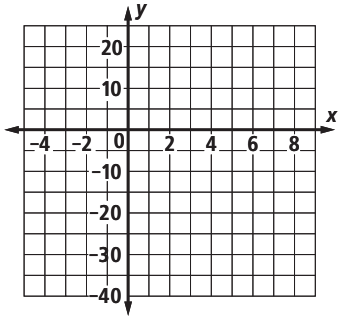
   a. Use a graphing utility to find the x-intercepts, and sketch the graph of h at the right.

   b. Solve $h(x) = 0$ using the quadratic formula.

   c. Use the results of Parts a and b to factor $h(x)$. $h(x) =$ _____

10. Suppose $p(x)$ is a third-degree polynomial whose roots are –3, 5, and $\frac{1}{2}$. Sketch a possible graph for p at the right.

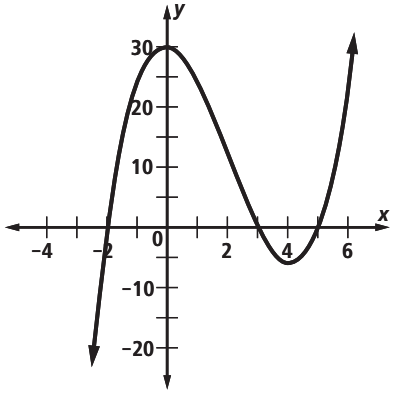


In 11 and 12, a polynomial function of the given degree with integer zeros and leading coefficient 1 is graphed below each question. Use the graph to write an equation for the polynomial function a. in factored form, and b. in standard form.

11. degree 3

    a. _____

    b. _____



12. degree 4

    a. _____

    b. _____