5.6 EXERCISES

HOMEWORK KEY

= **WORKED-OUT SOLUTIONS** on p. WS1 for Exs. 7, 21, and 47

= **TAKS PRACTICE AND REASONING** Exs. 23, 38, 39, 40, 50, 52, and 53

SKILL PRACTICE

1. **VOCABULARY** Copy and complete: If a polynomial function has integer coefficients, then every rational zero of the function has the form $\frac{p}{q}$, where p is a factor of the __?__ and q is a factor of the __?__.

2. **WRITING** *Describe* a method you can use to shorten the list of possible rational zeros when using the rational zero theorem.

EXAMPLE 1 on p. 370 for Exs. 3–10

LISTING RATIONAL ZEROS **List the possible rational zeros of the function using the rational zero theorem.**

3. $f(x) = x^3 - 3x + 28$
4. $g(x) = x^3 - 4x^2 + x - 10$
5. $f(x) = 2x^4 + 6x^3 - 7x + 9$
6. $h(x) = 2x^3 + x^2 - x - 18$
7. $g(x) = 4x^5 + 3x^3 - 2x - 14$
8. $f(x) = 3x^4 + 5x^3 - 3x + 42$
9. $h(x) = 8x^4 + 4x^3 - 10x + 15$
10. $h(x) = 6x^3 - 3x^2 + 12$

EXAMPLE 2 on p. 371 for Exs. 11–18

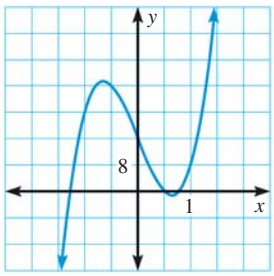
FINDING REAL ZEROS **Find all real zeros of the function.**

11. $f(x) = x^3 - 12x^2 + 35x - 24$
12. $f(x) = x^3 - 5x^2 - 22x + 56$
13. $g(x) = x^3 - 31x - 30$
14. $h(x) = x^3 + 8x^2 - 9x - 72$
15. $h(x) = x^4 + 7x^3 + 26x^2 + 44x + 24$
16. $f(x) = x^4 - 2x^3 - 9x^2 + 10x - 24$
17. $f(x) = x^4 + 2x^3 - 9x^2 - 2x + 8$
18. $g(x) = x^4 - 16x^2 - 40x - 25$

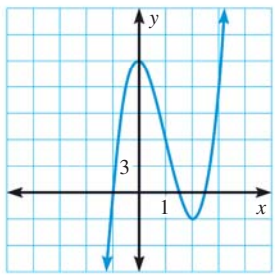
EXAMPLE 3 on p. 372 for Exs. 19–35

ELIMINATING POSSIBLE ZEROS **Use the graph to shorten the list of possible rational zeros of the function. Then find all real zeros of the function.**

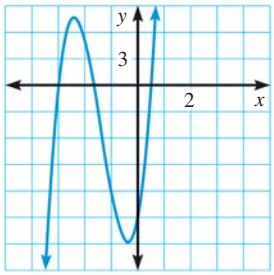
19. $f(x) = 4x^3 - 20x + 16$



20. $f(x) = 4x^3 - 12x^2 - x + 15$



21. $f(x) = 6x^3 + 25x^2 + 16x - 15$



22. $f(x) = -3x^3 + 20x^2 - 36x + 16$