

5.8 EXERCISES

HOMEWORK KEY

- = **WORKED-OUT SOLUTIONS**
on p. WS1 for Exs. 3, 19, and 41
- ✚ = **TAKS PRACTICE AND REASONING**
Exs. 21, 30, 32, 33, 43, 45, and 46
- ◆ = **MULTIPLE REPRESENTATIONS**
Ex. 42

SKILL PRACTICE

1. **VOCABULARY** Copy and complete: A local maximum or local minimum of a polynomial function occurs at a ? point of the function's graph.
2. **WRITING** Explain what a local maximum of a function is and how it may be different from the maximum value of the function.

EXAMPLE 1

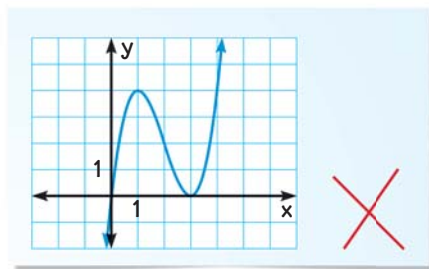
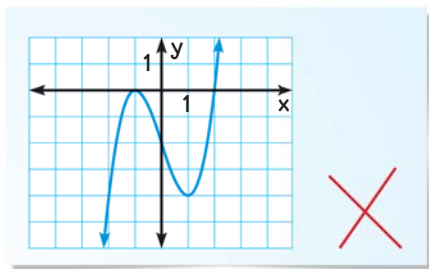
on p. 387
for Exs. 3–14

GRAPHING POLYNOMIAL FUNCTIONS Graph the function.

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| <ol style="list-style-type: none"> 3. 3. $f(x) = (x - 2)^2(x + 1)$ 5. $g(x) = \frac{1}{3}(x - 5)(x + 2)(x - 3)$ 7. $h(x) = 4(x + 1)(x + 2)(x - 1)$ 9. $f(x) = 2(x + 2)^2(x + 4)^2$ 11. $g(x) = (x - 3)(x^2 + x + 1)$ | <ol style="list-style-type: none"> 4. $f(x) = (x + 1)^2(x - 1)(x - 3)$ 6. $h(x) = \frac{1}{12}(x + 4)(x + 8)(x - 1)$ 8. $f(x) = 0.2(x - 4)^2(x + 1)^2$ 10. $h(x) = 5(x - 1)(x - 2)(x - 3)$ 12. $h(x) = (x - 4)(2x^2 - 2x + 1)$ |
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ERROR ANALYSIS Describe and correct the error in graphing f .

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| 13. $f(x) = (x + 2)(x - 1)^2$ | 14. $f(x) = x(x - 3)^3$ |
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EXAMPLE 2

on p. 388
for Exs. 15–30

ANALYZING GRAPHS Estimate the coordinates of each turning point and state whether each corresponds to a local maximum or a local minimum. Then estimate all real zeros and determine the least degree the function can have.

