

LESSON
8.8**Challenge Practice***For use with the lesson "Factor Polynomials Completely"***In Exercises 1–5, factor the expression completely.**

- $8(y + 3)^3 + 22(y + 3)^2 + 15(y + 3)$
- $(y - 1)^4 - 16$
- $(9x^2 - 12x + 4) - 9$
- $21x^2 + 15x + 14x + 10$
- $2y^5 - 32y$

In Exercises 6–10, factor completely to solve for x .

- $(x + 3)^2 + 3(x + 3) = 10$
- $x^5 = 81x$
- $8x^2 + 14x + 21 = -12x$
- $2x^2 - 5x + 30 = 12x$
- $\frac{1}{x^3} - \frac{6}{x^2} = -\frac{9}{x}$

In Exercises 11 and 12, use the following information.

A roller coaster has a velocity v (in miles per hours) described by the polynomial $v(t) = -10t^4 + 100t^2 - 90$ for times from $t = 1$ to $t = 3$ minutes.

- Find the velocity of the roller coaster when $t = 2$ minutes.
- For what times on the interval from $t = 1$ to $t = 3$ minutes does the roller coaster have a velocity of 0?