

Extra Practice: Skills and Word Problems

● **Lesson 9-1** Simplify. Write each answer in standard form.

- $(5x^3 + 3x^2 - 7x + 10) - (3x^3 - x^2 + 4x - 1)$
- $(x^2 + 3x - 2) + (4x^2 - 5x + 2)$
- $(4m^3 + 7m - 4) + (2m^3 - 6m + 8)$
- $(8t^2 + t + 10) - (9t^2 - 9t - 1)$
- $(-7c^3 + c^2 - 8c - 11) - (3c^3 + 2c^2 + c - 4)$
- $(6v + 3v^2 - 9v^3) + (7v - 4v^2 - 10v^3)$
- $(s^4 - s^3 - 5s^2 + 3s) - (5s^4 + s^3 - 7s^2 - s)$
- $(9w - 4w^2 + 10) + (8w^2 + 7 + 5w)$
- The sides of a rectangle are $4t - 1$ and $5t + 9$. Write an expression for the perimeter of the rectangle.
- Three consecutive integers are $n - 1$, n , and $n + 1$. Write an expression for the sum of the three integers.

● **Lesson 9-2** Simplify each product.

- $4b(b^2 + 3)$
- $9c(c^2 - 3c + 5)$
- $8m(4m - 5)$
- $5k(k^2 + 8k)$
- $5r^2(r^2 + 4r - 2)$
- $2m^2(m^3 + m - 2)$
- $-3x(x^2 + 3x - 1)$
- $-x(1 + x + x^2)$

Find the GCF of the terms of each polynomial. Factor.

- $t^6 + t^4 - t^5 + t^2$
- $3m^2 - 6 + 9m$
- $16c^2 - 4c^3 + 12c^5$
- $8v^6 + 2v^5 - 10v^9$
- $6n^2 - 3n^3 + 2n^4$
- $5r + 20r^3 + 15r^2$
- $9x^6 + 5x^5 + 4x^7$
- $4d^8 - 2d^{10} + 7d^4$

● **Lessons 9-3 and 9-4** Simplify each product. Write in standard form.

- $(5c + 3)(-c + 2)$
- $(3t - 1)(2t + 1)$
- $(w + 2)(w^2 + 2w - 1)$
- $(3t + 5)(t + 1)$
- $(2n - 3)(2n + 4)$
- $(b + 3)(b + 7)$
- $(3x + 1)^2$
- $(5t + 4)^2$
- $(w - 1)(w^2 + w + 1)$
- $(a + 4)(a - 4)$
- $(3y - 2)(3y + 2)$
- $(w^2 + 2)(w^2 - 2)$
- Geometry** A rectangle has dimensions $3x - 1$ and $2x + 5$. Write an expression for the area of the rectangle as a product and in standard form.
- Write an expression for the product of the two consecutive odd integers $n - 1$ and $n + 1$.

● **Lessons 9-5 to 9-7** Factor each expression.

- $x^2 - 4x + 3$
- $3x^2 - 4x + 1$
- $v^2 + v - 2$
- $5t^2 - t - 18$
- $m^2 + 9m - 22$
- $x^2 - 2x - 15$
- $2n^2 + n - 3$
- $2h^2 - 5h - 3$
- $m^2 - 25$
- $9y^2 - 1$
- $9y^2 + 6y + 1$
- $p^2 + 2p + 1$
- $x^2 + 6x + 9$
- $25x^2 - 9$
- $4t^2 + t - 3$
- $9c^2 - 169$
- $4m^2 - 121$
- $3v^2 + 10v - 8$
- $4g^2 + 4g + 1$
- $-w^2 + 5w - 4$
- $9t^2 + 12t + 4$
- $12m^2 - 5m - 2$
- $36s^2 - 1$
- $c^2 - 10c + 25$

● **Lesson 9-8** Factor each expression.

- $3y^3 + 9y^2 - y - 3$
- $3u^3 + u^2 - 6u - 2$
- $w^3 - 3w^2 + 3w - 9$
- $4z^3 + 2z^2 - 2z - 1$
- $3x^3 + 8x^2 - 3x$
- $y^5 - 9y$
- $2p^3 - 4p^2 + 2p - 4$
- $3y^3 - 3y^2 - 6y$