Name _____   Date _____

Challenge Practice

For use with the lesson "Add and Subtract Polynomials"

In Exercises 1–5, use the following information.

Suppose you have x number of quarters, $x + 4$ number of dimes, $2x + 1$ number of nickels, and $3x + 5$ number of pennies. For each combination of coins, determine whether the number of coins is even, odd, or can't be determined from the given information.

1. The total number of quarters and dimes

2. The total number of quarters and nickels

3. The total number of quarters and pennies

4. The total number of dimes and pennies

5. The total number of dimes, nickels, and pennies

In Exercises 6–12, simplify the given expression. Assume x is positive.

6. $(2x + 1)[(3x^2 - 2x + 5) + (2x^2 + 4x - 3) - (5x^2 + 2x + 2)]$

7. $(2x + 1)^{[(3x^2 - 2x + 5) + (2x^2 + 4x - 3) - (5x^2 + 2x + 2)]}$

8. $x^{3x + 5} \cdot x^{-2x - 2} \cdot x^{-x - 2}$

9. $3^{x^x} \cdot x^{-2x} \cdot x^x$

10. $\dfrac{3^{2x^2 - 5x + 1} \cdot 3^{-2x^2 + 5x + 3}}{2^{6x - 1} \cdot 2^{-6x + 3}}$

11. $\dfrac{5^{2x^2 - 3x - 4}}{5^{2x^2 - 3x - 6}}$

12. $\dfrac{3^{x^2 - 2}}{3^{x^2 - 5}} - \dfrac{2^{x^4 + 3}}{2^{x^4}}$