Chapter P Review **Name** _____

Graph each interval and write the interval in set-builder notation.

1. $[-3, 2)$

2. $(-1, \infty)$

Graph each interval and write the set in interval notation.

3. $\{x \mid -4 < x \leq 2\}$

4. $\{x \mid x \leq -1\} \cup \{x \mid x > 3\}$

Evaluate the variable expressions for $x = -2,\ y = 3,$ and $z = -5$**.**

5. $-3x^3 - 4xy - z^2$

6. $2x - 3y(4z - x^3)$

Simplify the variable expression.

7. $8 - 3(2x - 5)$

8. $5x - 3[7 - 2(6x - 7) - 3x]$

Simplify the exponential expression.

9. -2^{-5}

10. $-\dfrac{1}{\pi^0}$

11. $\dfrac{2}{z^{-4}}$

12. $\dfrac{x^{-4}}{y^{-3}}$

13. $25^{1/2}$

14. $-27^{2/3}$

15. $36^{-\frac{1}{2}}$

16. $\dfrac{3}{81^{-1/4}}$

17. $\left(-4x^3y^2\right)\left(6x^4y^3\right)$

18. $\dfrac{12a^5b}{18a^3b^6}$

19. $\left(-3x^{-2}y^3\right)^{-3}$

20. $\left(\dfrac{2a^2b^{-4}}{6a^{-3}b^6}\right)^{-2}$

Perform the indicated operation and express each result as a polynomial in standard form.

21. $\left(2a^2+3a-7\right)+\left(-3a^2-5a+6\right)$

22. $\left(3x-2\right)\left(2x^2+4x-9\right)$

23. $\left(3x-4\right)\left(x+2\right)$

24. $\left(5x+1\right)\left(2x-7\right)$

Factor the polynomial completely.

25. $x^2+7x-18$

26. $2x^2+11x+12$

27. $6x^3y^2-12x^2y^2-144xy^2$

28. $9x^2 - 100$

29. $x^3 + 27$

30. $25x^2 - 30xy + 9y^2$

Write the complex number in standard form.

31. $5 + \sqrt{-64}$

32. $2 - \sqrt{-18}$

Perform the indicated operation and write answer in simplest form.

33. $(2 - 3i) + (4 + 2i)$

34. $(2 + 7i) - (6 - 3i)$

35. $2i(3 - 4i)$

36. $(4 - 3i)(2 + 7i)$

37. $\dfrac{4 - 6i}{2i}$

38. i^{34}

39. $\dfrac{2 - 5i}{3 + 4i}$

40. i^{67}

Simplify the expression.

41. $\dfrac{6x^2-19x+10}{2x^2+3x-20}$

42. $\dfrac{10x^2+13x-3}{6x^2-13x-5}\bullet\dfrac{6x^2+5x+1}{10x^2+3x-1}$

43. $\dfrac{15x^2+11x-12}{25x^2-9}\div\dfrac{3x^2+13x+12}{10x^2+11x+3}$

44. $\dfrac{x}{x^2-9}+\dfrac{2x}{x^2+x-12}$