

Advanced Algebra - Polynomial Review
Assignment # _____

Name _____

Simplify. Write with positive exponents.

1. $(x^2 + 3x - 8) + (2x^2 - 5x - 4)$

2. $(3y^2 - 4y - 2) - (5y^2 - 8y + 6)$

3. $(3a^2 - 9a) - (-5a^2 + 7a - 6)$

4. $(x^{2n} + 7x^n - 3) + (-x^{2n} + 2x^n + 8)$

5. $(x^{2n} - x^n + 2) - (3x^{2n} - x^n + 5)$

6. $3y^3 - 7y^2 - 5y + 2y^2 - 8y^3 + 2y$

7. $(4a^2b^3c)(-5a^5c^2)$

8. $(2xy)(-3x^2yz)(x^2y^4z^3)$

9. $y^{2n} \cdot y^{5n}$

10. $(4g^3h^4)^3$

11. $(3b^5)^2 (2a^2b^3)^2 (-2abc)$

12. $(y^{3n+2})^5$

13. $8x^{-2}$

14. $-10c^{-3}$

15. $\frac{1}{5a^{-2}}$

16. $x^{-5} \cdot x^2$

17. $(a^{-3})^{-4}$

18. $(n^2)^{-4}$

19. $2x^3 \cdot 5y^{-2} \cdot 3x^{-5} \cdot 4y^6$

20. $(-5y^{-2})^3$

21. $\frac{x^{-7}}{x^{-8}}$

22. $\frac{x^{-2}y^{-11}}{xy^{-2}}$

23. $\frac{a^{-1}b^{-3}}{a^4b^{-5}}$

24. $\frac{a^6b^{-4}}{a^{-2}b^5}$

25. $(2a^{-1})^{-2}(2a^{-1})^4$

26. $(x^{-1}y^2)^{-3}(x^2y^{-4})^{-3}$

27. $\frac{c^{-5}d}{4^{-1}c^2}$

28. $(a + b)^{-1}$

29. $\frac{(3x^{-2}y)^{-2}}{(4xy^{-2})^{-1}}$

30. $(x + 4)(x - 5)$

31. $(5t - 3)(5t + 3)$

32. $(2x - 5)(3x - 4)$

33. $(a + y)(a + y)$

34. $(x^2 + 5)(x^2 - 5)$

35. $(x + 2y)(x - 5y)$

36. $5t^2(2t + 3)$

37. $(a^n + 3)(a^n + 2)$

38. $(x - 3)(x + 3)(x + 3)$

39. $(x - 1)(x^2 + x + 1)$

Advanced Algebra - Polynomial Review
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Name Key

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Simplify. Write with positive exponents.

1. $(x^2 + 3x - 8) + (2x^2 - 5x - 4)$

$$3x^2 - 2x - 12$$

2. $(3y^2 - 4y - 2) - (5y^2 - 8y + 6)$

$$-2y^2 + 4y - 8$$

3. $(3a^2 - 9a) - (-5a^2 + 7a - 6)$

$$8a^2 - 16a + 6$$

4. $(x^{2n} + 7x^n - 3) + (-x^{2n} + 2x^n + 8)$

$$9x^n + 5$$

5. $(x^{2n} - x^n + 2) - (3x^{2n} - x^n + 5)$

$$-2x^{2n} - 3$$

6. $3y^3 - 7y^2 - 5y + 2y^2 - 8y^3 + 2y$

$$-5y^3 - 5y^2 - 3y$$

7. $(4a^2b^3c)(-5a^5c^2)$

$$-20a^7b^3c^3$$

8. $(2xy)(-3x^2yz)(x^2y^4z^3)$

$$-6x^5y^6z^4$$

9. $y^{2n} \cdot y^{5n}$

$$y^{7n}$$

10. $(4g^3h^4)^3$

$$64g^9h^{12}$$

11. $(3b^5)^2(2a^2b^3)^2(-2abc)$

$$-72a^5b^{17}c$$

12. $(y^{3n+2})^5$

$$y^{15n+10}$$

13. $8x^{-2}$

$$\frac{8}{x^2}$$

14. $-10c^{-3}$

$$-\frac{10}{c^3}$$

15. $\frac{1}{5a^{-2}}$

$$\frac{a^2}{5}$$

16. $x^{-5} \cdot x^2$

$$\frac{1}{x^3}$$

17. $(a^{-3})^{-4}$

$$a^{12}$$

18. $(n^2)^{-4}$

$$\frac{1}{n^8}$$

$$19. 2x^3 \cdot 5y^{-2} \cdot 3x^{-5} \cdot 4y^6$$

$$\frac{120 y^4}{x^2}$$

$$20. (-5y^{-2})^3$$

$$\frac{-125}{y^6}$$

$$21. \frac{x^{-7}}{x^{-8}}$$

$$x$$

$$22. \frac{x^{-2}y^{-11}}{xy^{-2}}$$

$$\frac{1}{x^3 y^9}$$

$$23. \frac{a^{-1}b^{-3}}{a^4b^{-5}}$$

$$\frac{b^2}{a^5}$$

$$24. \frac{a^6b^{-4}}{a^{-2}b^5}$$

$$\frac{a^8}{b^9}$$

$$25. (2a^{-1})^{-2}(2a^{-1})^4$$

$$\frac{4}{a^2}$$

$$26. (x^{-1}y^2)^{-3}(x^2y^{-4})^{-3}$$

$$\frac{y^6}{x^3}$$

$$27. \frac{c^{-5}d}{4^{-1}c^2}$$

$$\frac{4d}{c^7}$$

$$28. (a+b)^{-1}$$

$$\frac{1}{a+b}$$

$$29. \frac{(3x^{-2}y)^{-2}}{(4xy^{-2})^{-1}}$$

$$\frac{4x^5}{9y^4}$$

$$30. (x+4)(x-5)$$

$$x^2 - x - 20$$

$$31. (5t-3)(5t+3)$$

$$25t^2 - 9$$

$$32. (2x-5)(3x-4)$$

$$6x^2 - 23x + 20$$

$$33. (a+y)(a+y)$$

$$a^2 + 2ay + y^2$$

$$34. (x^2+5)(x^2-5)$$

$$x^4 - 25$$

$$35. (x+2y)(x-5y)$$

$$x^2 - 3xy - 10y^2$$

$$36. 5t^2(2t+3)$$

$$10t^3 + 15t^2$$

$$37. (a^n+3)(a^n+2)$$

$$a^{2n} + 5a^n + 6$$

$$38. (x^2-9)(x+3)$$

$$(x-3)(x+3)(x+3)$$

$$x^3 + 3x^2 - 9x - 27$$

$$39. (x-1)(x^2+x+1)$$

$$x^3 - 1$$