

Name: _____
 Algebra 1

Date: _____
 Band: _____

June 2015 Practice PBA

Unit 6: Exponents and Exponential Functions

Simplify using only positive exponents.

1. $\left(\frac{27a^5b^4}{9a^2b}\right)^{-2}$

2. $\frac{5x^2y^3}{3x^3y^4}$

3. $\frac{(5^{-3})(7^2)}{(5^6)(7^{-8})}$

4. $(2x^4y^3)^2$

5. $\frac{4^{-3}}{5^3} \cdot \frac{5^4}{3^{-2}} \cdot \frac{2^5}{3^0}$

6. $\frac{4x^{-4}y^3}{8x^2y^{-6}}$

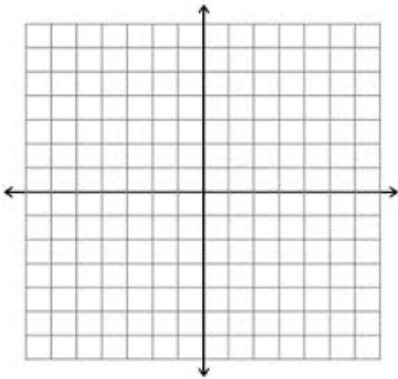
7. $7x^2y^{-1}(2xy^2)^3$

8. $\left(\frac{4x^2y^5}{12x^3y^2z^0}\right)^{-3}$

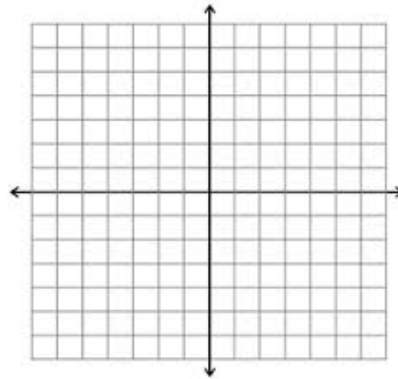
9. $2x^0(2x^3)^2$

Graph each exponential function.

10. $y = \frac{1}{4} \cdot 2^x$



11. $y = -\left(\frac{1}{3}\right)^x$



Unit 7: Polynomials & Factoring

Simplify.

12. $3(x^2 + 1) - 5x(x^2 + x + 1)$

13. $(2x^2 - 4x + 8) - (3x^2 + 10x + 2)$

14. $(4x + 2)(x^2 - 2x - 3)$

15. $2xy^2(3x^2 - 2y) - x^2y(2x - 3xy)$

16. $(6x^3 - 2x^2 - 5x) - (x^3 - 9x^2 + 4)$

17. $(2x + 3)^2$

18. $(x^2 + 3x + 4) + (2x + 4)$

19. $(x + 2)^2$

Factor.

20. $x^2 + 6x - 27$

21. $x^2 + 8x + 12$

22. $5z^2 + 19z - 4$

23. $4n^2 - 8n + 3$

24. $r^2 - 11r + 24$

25. $n^2 - 3n - 10$

Factor Completely.

26. $6x^4 - 21x^3 - 12x^2$

27. $8g^3 - 32g$

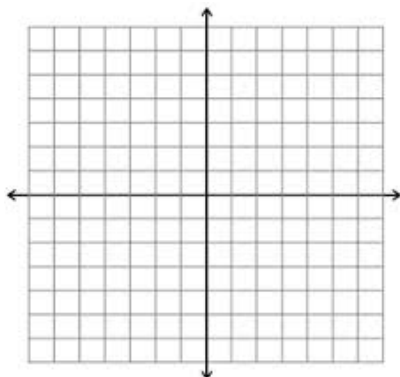
28. A rectangle has length $(2x + 7)$ and width $(3x - 4)$. What is the perimeter and area of the rectangle?

29. What is the leading coefficient and degree of $-3c^7 + 8c^3 + c$?

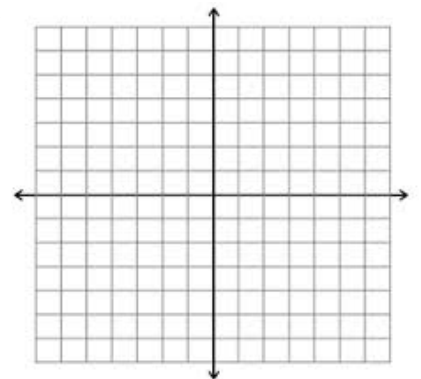
Unit 8: Quadratic Functions & Equations

Graph *at least 5 points* of each equation by making a table of values. What is the vertex? What is the axis of symmetry?

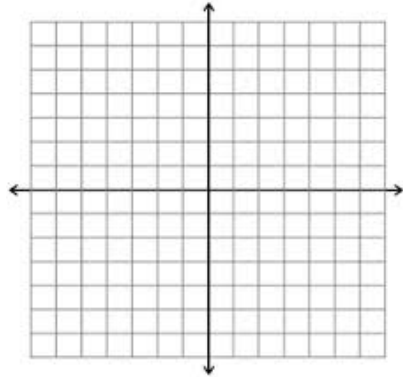
30. $y = x^2 - 2$



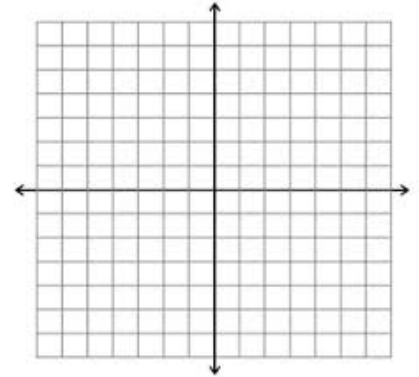
31. $y = -x^2 + 2x + 4$



32. $y = 2x^2 - 5$



33. $y = x^2 - 2$



Solve.

34. $3x^2 + 11x - 4 = 0$

35. $2x^2 + 3x = 2$

36. $x^2 - 4 = x + 8$

37. Solve: $0 = 6x^2 - 4x - 2$

38. $6x^2 + 7x - 20 = 0$

39. $x^2 + 6x + 8 = 0$

40. $x^2 - 9 = 0$

41. $3x^2 - 12 = 0$

42. $2x^2 - 18 = 0$

43. $k^2 - 196 = 0$

Unit 9: Radical Expressions

Simplify.

44. $3\sqrt{18} - 2\sqrt{32}$

45. $\sqrt{x^4y^3} \cdot \sqrt{8x^3y}$

46. $\sqrt{75} + \sqrt{3}$

47. $\sqrt{75x^2} \cdot \sqrt{3x^3}$

48. $\sqrt{8} + \sqrt{2}$

49. $\sqrt{8x^2} \cdot \sqrt{2x^2}$

50. $\sqrt{300}$

51. $-\frac{\sqrt{18}}{\sqrt{12}}$

52. $\sqrt{80}$

53. $\frac{-3\sqrt{14x^3}}{-\sqrt{21x}}$

54. $-\frac{\sqrt{5c}}{\sqrt{45c^3}}$

55. $\frac{\sqrt{13f^3}}{\sqrt{5f^2}}$

Unit 10: Rational Expressions**Simplify.**

56. $\frac{4}{y^3} \cdot \frac{-3}{5y}$

57. $\frac{z-3}{3z} \cdot \frac{z+8}{z+2}$

58. $\frac{x^2-4}{x+3} \cdot \frac{x^2+7x+12}{x-2}$

59. $\frac{z+5}{z} \div \frac{3z+15}{4z}$

60. $\frac{3}{5x^2} + \frac{5}{2x}$

61. $\frac{4}{t-3} - \frac{1}{t-2}$

62. $\frac{2x}{x-5} + \frac{9}{x+4}$

63. $\frac{m+6}{m^2-m-42}$

64. $\frac{m-2}{4-2m}$