

# Algebra 1 B Exam Review

NAME \_\_\_\_\_

## Unit 6 Exponent Rules and Polynomials

*Simplify. Assume that no denominator is equal to zero.*

1.  $(3a^4b^2c)(ab^2c^4)$

2.  $(5x^2y^3)^3$

3.  $\frac{a^{12}}{a^4}$

4.  $\frac{n^5}{n^3}$

5.  $\frac{6n^{-3}y}{2n^{-1}y^{-3}}$

6.  $\left(\frac{5x}{x^3}\right)^{-4}$

7. Find the degree of the polynomial.

$$2x^3y - 4xy^2 + 9x^3y^2$$

8. Arrange the terms of the polynomial so that the "**powers of x**" are in descending order.

$$8x^2y^3 + x^5y - 5x^3y^3 + y^7$$

*Find the sum or difference.*

9.  $(n^2 + 3n) + (2n^2 - n)$

10.  $(9t^2 + 4t - 6) - (t^2 - 2t + 4)$

11.  $3b^2(4b + 7) - 2b(b^2 - 5b - 3)$

*Solve the equation.*

12.  $4(2x + 1) - 12x = 2(8x + 12)$

13.  $2(6x + 4) + 2 = 4(x - 4)$

**Find the product.**

14.  $-3x^3(5x^2+5x-3)$

15.  $4a(-2a^3-7a^2+3a-11)$

16.  $(x+2)(x+4)$

17.  $(x+4)(x-8)$

18.  $(3x+2)(4x^2-2x-7)$

### **Unit 7 Factoring Polynomials with GCF and XBox**

**Factor the polynomial, if possible. If the polynomial cannot be factored using integers, write prime.**

1.  $3ab^3c-9b^2c+12b^5$

2.  $6x^2-4x-3x+2$

3.  $z^2-11z+30$

4.  $3x^2+7x+2$

5.  $2h^2+9h-5$

6.  $16h^2-64$

7.  $64x^2-25$

**Solve the equation.**

8.  $64w^2=9$

9.  $5g^2-22g+8=0$

10.  $c^2+4c=45$

11.  $6x^2+7x-3=0$

12.  $(8x-16)(6-2x)=0$

13.  $10x^2=8x$

## Unit 8 Radicals and Jail Break

Simplify each expression

1.  $\sqrt{40}$

2.  $\sqrt{5} \cdot \sqrt{60}$

3.  $\frac{\sqrt{8}}{\sqrt{6}}$

4.  $8\sqrt{54} - 4\sqrt{6}$

5.  $4\sqrt{3} + 2\sqrt{12}$

6.  $\sqrt[6]{64}$

7.  $\sqrt[4]{81}$

8.  $2(\sqrt{3} + 4\sqrt{5})$

9.  $(4 + \sqrt{3})(4 - \sqrt{3})$

10.  $27^{\frac{2}{3}}$

11.  $64^{\frac{-2}{3}}$

12.  $8^{\frac{-5}{3}}$

13. Write the expression  $x^{\frac{4}{7}}$  in root notation. \_\_\_\_\_

14. Write the expression  $\sqrt[4]{18^3}$  in exponent notation. \_\_\_\_\_

*Solve the equation. Then check your solution.*

15.  $\sqrt{2c-1} = 5$

16.  $-4 + \sqrt{4x-4} = 0$

17.  $\sqrt{g} - 6 = 3$

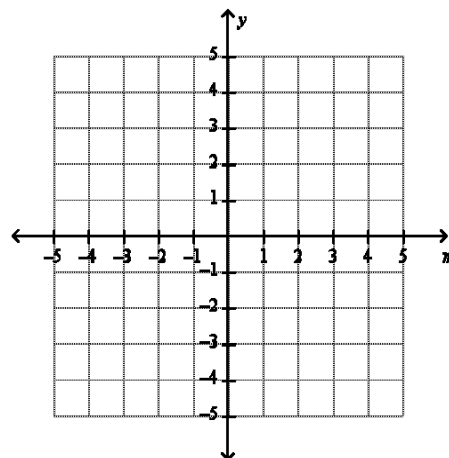
## Unit 9 Quadratic Formulas (Parabolas)

1. Write the equation for the axis of symmetry for the graph of  $y = 2x^2 + 4x - 2$ .  $x = \frac{-b}{2a}$

2. What are the coordinates of the vertex of the graph? \_\_\_\_\_

*Use the graph to the right to answer questions 13-16.*

3. How many real roots does it have? \_\_\_\_\_
4. What are the solution(s)? \_\_\_\_\_
5. Does the parabola open up or down? \_\_\_\_\_
6. Is the vertex a minimum or maximum? \_\_\_\_\_



*Solve the equation by using the Quadratic Formula. Round to the nearest tenth if necessary.*

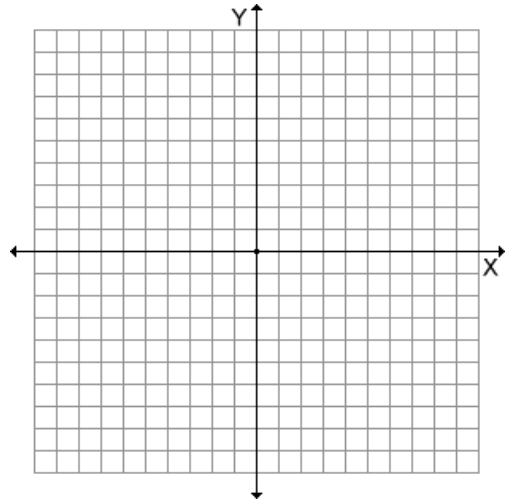
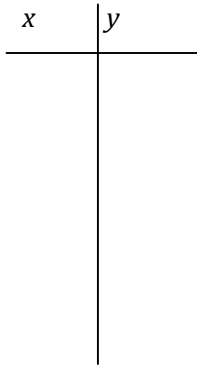
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

7.  $2x^2 + 5x - 7 = 0$

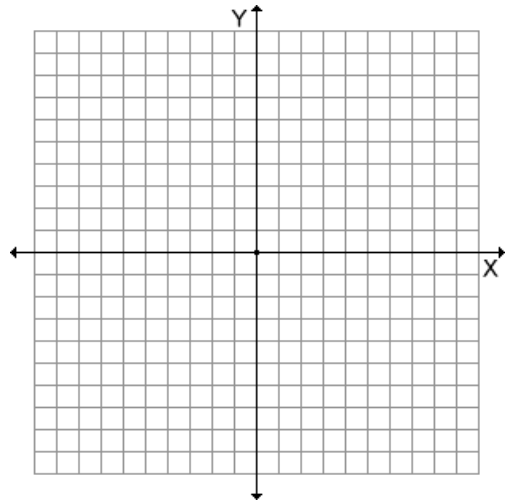
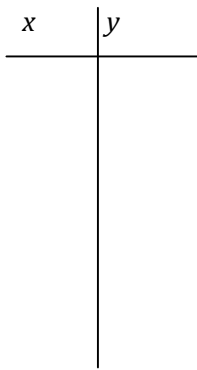
8.  $x^2 - 6x - 9 = 0$

9.  $3x^2 - 7x - 6 = 0$

10. Graph  $y = x^2 - 2x - 6$



11. Given the equation  $y = 4(x + 2)^2 - 1$ , what is the vertex of its graph? \_\_\_\_\_



12. Given the equation  $y = 4(x + 2)^2 - 1$ , what is the vertex of its graph? \_\_\_\_\_

13. Given the equation  $y = (x - 6)^2$ , what is the vertex of its graph? \_\_\_\_\_

## UNIT 10 Exponential Functions (Growth and Decay)

1. Which equation models exponential growth?

- a.  $y = 3x$       b.  $y = 6^x$       c.  $y = \left(\frac{1}{4}\right)^x$       d.  $y = 2(0.5)^x$

2. Which equation displays exponential decay?

- a.  $y = 3x$       b.  $y = 6^x$       c.  $y = \left(\frac{1}{4}\right)^x$       d.  $y = 2(0.5)^x$

### WRITE the FORMULAS

**Exponential Growth:** \_\_\_\_\_      *Key words:* \_\_\_\_\_

**Exponential Decay:** \_\_\_\_\_      **Half-Life:** \_\_\_\_\_

*key words:* \_\_\_\_\_

*key word:* \_\_\_\_\_

**Percent Growth:** \_\_\_\_\_      **PERCENT DECAY:** \_\_\_\_\_

*key words:* \_\_\_\_\_      *key words:* \_\_\_\_\_

3. Computer use around the world has risen 18% annually since 1980. If 17.9 million computers were in use in 1985, write an equation for the number of computers in use for  $t$  years after 1985.

Equation: \_\_\_\_\_

4. If the number of rabbits in a cage double every two years, how many will be in the cage after 6 years if you start out with 2?

Equation: \_\_\_\_\_      Answer: \_\_\_\_\_

5. Tim bought an SUV for 43,500 in 2006. What is the value of the SUV in 2008 if it depreciates at 14% each year?

Equation: \_\_\_\_\_

Answer: \_\_\_\_\_

6. Carbon-10 has a half-life of 1,620 years. If you begin with 4 grams of Carbon-10, how much will remain after 3 half life periods?

Equation: \_\_\_\_\_

Answer: \_\_\_\_\_

7. The Johnson family purchased a new home in 2003 for \$225,000. The value has appreciated 7.5% each year. What will the home be worth in 2012?

Equation: \_\_\_\_\_

Answer: \_\_\_\_\_

8. If you invest \$1,000 compounded monthly at a rate of 5%, how much will be in the account after 10 years?

Equation: \_\_\_\_\_

Answer: \_\_\_\_\_



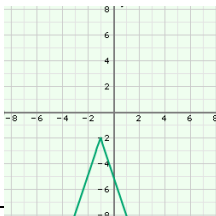


## UNIT 11: Family Functions

Match each equation to its graph.

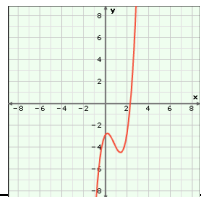
1.  $y = 2x^2 - 2x + 1$

A.



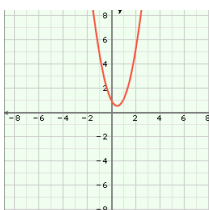
2.  $y = -3|x+1| - 2$

B.



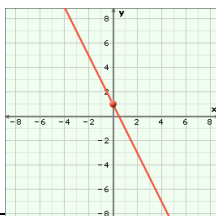
3.  $y = \sqrt{x+4} + 1$

C.



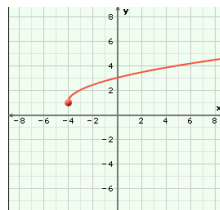
4.  $y = 4(2.93)^x$

D.



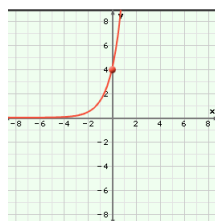
5.  $y = \frac{x+4}{x-1}$

E.



6.  $y = 2x^3 - 5x^2 + 2x - 3$

F.



7.  $y = -2x + 1$

G.

