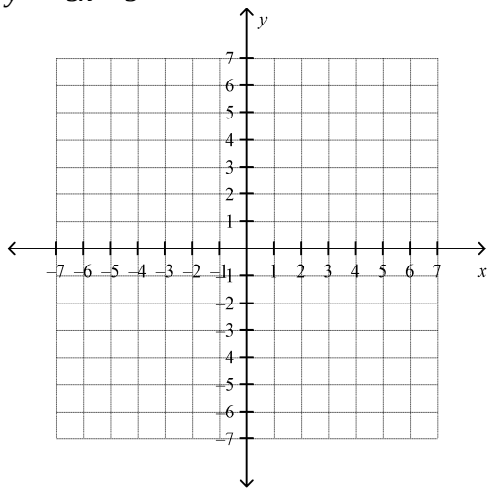
Name: _____ **Hr:** _____ **ID: A**

Algebra 1 - Semester 2 Exam Review

Chapter 6 - Systems of Equations

1 Graph the system of equations and tell whether there is *no solution*, *one solution*, or *infinitely many solutions*.
$y = -5x + 4$
$y = -5x + 5$



2 Tell whether the ordered pair (5, –2) is a solution of the system $\begin{cases} 3x - 2y = 19 \\ -3x - y = -14 \end{cases}$.

3 Solve $\begin{cases} 3x + y = 5 \\ y = x - 3 \end{cases}$ by using substitution. Express your answer as an ordered pair.

4 Solve $\begin{cases} 4x - 4y = -24 \\ -x + 4y = 21 \end{cases}$ by using elimination. Express your answer as an ordered pair.

5 Solve $\begin{cases} x - 4y = -13 \\ -7x - 4y = -5 \end{cases}$ by using elimination. Express your answer as an ordered pair.

6 Solve the system of equations using the method of your choice.
$y = 3x + 7$
$y = 4x + 3$

7 Solve the system of equations using the method of your choice.
$\begin{cases} 5x - 3y = -16 \\ 4x + 2y = -4 \end{cases}$

8 The Fun Guys game rental store charges an annual fee of $10 plus $6.50 per game rented. The Game Bank charges an annual fee of $34 plus $4.50 per game. For how many game rentals will the cost be the same at both stores? What is that cost?

9 Janice's Jelly Donut Store has $2500 in expenses each month plus it costs $2 per dozen donuts to make them. She sells donuts for 7 per dozen. How many dozen must she sell each month to break even?

10 The sum of two numbers is 74. Their difference is 14. Write a system of equations that describes this situation. Solve by elimination to find the two numbers.

11 Sharon has some one-dollar bills and some five-dollar bills. She has 14 bills. The value of the bills is $30. Solve a system of equations using elimination to find how many of each kind of bill she has.

Chapter 7 - Exponents

12 Simplify 2^{-3}.

13 Evaluate $a^{-2}b^{0}$ for $a = -3$ and $b = -3$.

14 Simplify $\dfrac{9x^{0}y^{-8}}{z^{-8}}$.

15 Simplify $m^{3} \cdot y^{6} \cdot m^{2}$.

16 Simplify $(x^{5})^{-8}x^{4}$.

17 Simplify $(m^{2}n^{-3})^{2}(-m^{-3}n^{3})^{3}$.

18 Simplify $\dfrac{y^{6}z^{12}}{(yz)^{3}}$.

19 Simplify $\left(\dfrac{2m^{8}}{m^{2}n^{4}}\right)^{4}$.

20 Simplify $(x^{9})^{0}(x^{7})^{2}$

21 Simplify $(-5g^{5}h^{6})^{2}(g^{4}h^{2})^{4}$

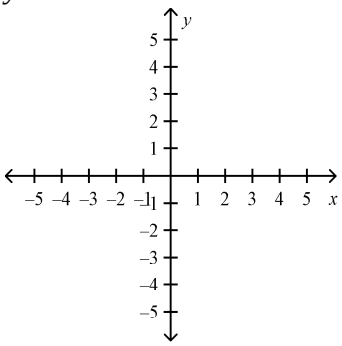
22 Which function is greater at the given value?
$y = 2^x$ or $y = x^2$ at $x = 9$

23 Suppose the population of a town is 2,700 and is growing 4% each year.
a. Write an equation to model the population growth.

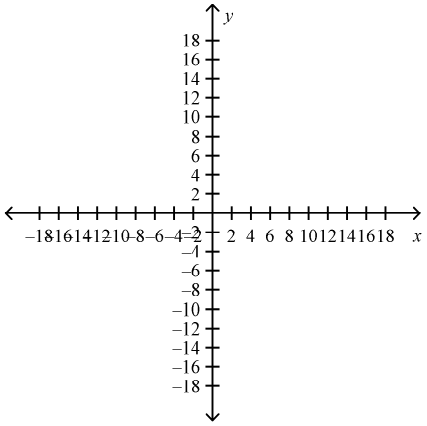
b. Predict the population after 12 years.

24 Find the balance in the account.
$2,400 principal earning 2%, compounded annually, after 7 years

25 Graph the equation.
$y = 2^x$



26 Graph the equation.
$y = -2 * 3^x$



Ch. 8 - Polynomials

27 Write the polynomial in standard form. Then name the polynomial based on its degree and number of terms. $2 - 11x^2 - 8x + 6x^2$

28 Write the polynomial in standard form. Then give the leading coefficient.
$-10x^3 + 2x + 12x^4 + x^2 - 5x^5 + 10$

29 Simplify each sum or difference.
$(4d^4 - d^2) + (d^4 + 7d^2 - 1)$

.

30 Simplify each sum or difference.
$(8w^2 - 4w - 4) - (6w^2 + 3w - 3)$

31 Simplify each sum or difference.
$(3b^5 - b^3) - (b^5 + 7b^3 - 2)$

.

32 Find the product.
$8p(-3p^2 + 6p - 2)$

33 $4a^6(6a^6 - 2b^2)$

34 $(4x + 7)(5x - 3)$

35 $(2n + 2)(2n - 2)$

36 $(3x - 7)(3x - 5)$

37 $(5x - 3)(x^3 - 5x + 2)$

38 $(2x - 6)^2$

39 Factor the polynomial.
$r^2 - 36$

40 Factor the polynomial.
$16b^2 - 81$

41 The length of a rectangle is $3x - 4$. The area is $6x^2 - 2x - 8$. What is the other side length?

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