COORDINATE ALGEBRA FINAL EXAM STUDY GUIDE

UNIT 1	
1.	How many terms are in the simplified expression $22x^3+14x^2-10x^2+3x+7$?
2.	The product of –3, a, and b is represented by the expression $-3ab$. If the value of a is negative, what must be said about the value of b in order for the product to remain negative?
3.	A family's cell phone plan costs $70 per month for 1,300 minutes and 40 cents per minute over the limit. This month, the family paid $118.40. By how much time did they exceed their plan?
4.	You have no more than $60 to spend. You want a drink that costs $1.50 including tax, and you want to buy a pair of pants, which will have 4% sales tax. What is the inequality that represents the amount of money you have to spend?
5.	A store has a display with pencils that are for sale. The owner typically sells 6 pencils a day. The display holds 50 pencils. The owner insists that there be no fewer than 32 pencils in the display. When should the owner restock the display?
6.	The population of bacteria in a Petri dish is 550 and increases according to the expression $550(3.4^{0.005t})$, where t is the number of hours. What effect would increasing the initial population of the bacteria have on the rate at which the number of bacteria increases?
7.	Peter walked 8,900 feet from home to school. 1 mile = 5,280 feet How far, to the *nearest tenth of a mile*, did he walk?
8.	A person's heart is beating 87 times a minute. At this rate, about how many times does it beat in one hour?

9. A cell phone can receive 120 messages per minute. At this rate, how many messages can the phone receive in 150 seconds?

10. Jason's part-time job pays him $155 a week. If he has already saved $375, what is the minimum number of weeks he needs to work in order to have enough money to buy a dirt bike for $900?

UNIT 2 Part 1

11. Identify the property of equality that justifies the missing step in solving the equation below.

Equation	Steps
$3x - (x + 4) = -6$	Original equation
$3x - x - 4 = -6$	Distributive property
$2x - 4 = -6$	Addition to simplify
$2x = -2$	
$x = -1$	Division property of equality

12. Identify the property of equality that justifies the missing step in solving the equation below.

Equation	Steps
$2x + 2(3x - 5) = 14$	Original Equation
$2x + 6x - 10 = 14$	
$8x - 10 = 14$	Combine like terms
$8x = 24$	Addition Property of equality
$x = 3$	Division Property of equality

13. What is the solution to the equation $4x - 7 - 9x = 13 + 5x$?

14. What is the solution to the equation $3x + 5(4x - 6) - 8 = 3x - 14$?

15. What is the solution to the inequality $10x - 7 \geq 3x + 28$?

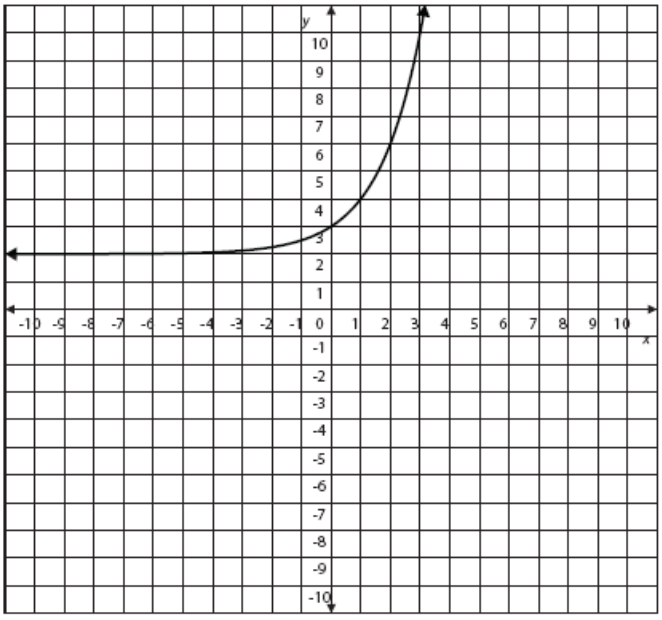
16.	What is the solution to the inequality $\frac{4x}{7}-6<2x+4$?
17.	What is the solution to the equation $4^x=\frac{1}{64}$?
18.	What is the solution to the equation $25=2^x-7$?
19.	The formula for calculating a person's body mass index is $B=\frac{w}{h^2}$, for which w represents weight in kilograms and h represents height in meters. Solve this formula for w.
20.	Write the inequality represented by the graph. 
UNIT 2 Part 2	
21.	What is the solution to the system $\begin{cases} x+2y=15 \\ 2x+y=9 \end{cases}$?
22.	What is the solution to the system $\begin{cases} 3x+5y=4 \\ -2x+2y=8 \end{cases}$?

23.	In order to solve the following system of equations by substitution, what expression would you substitute for y in Equation 2? Equation 1: 5x + y = 10 Equation 2: 2x + 3y = 6
24.	In order to solve the following system of equations by linear combination/elimination, what would you muliply by to eliminate the ***y***? Equation 1: 4x + y = 30 Equation 2: -x + 3y = 15
25.	Draw a graph that represents the solution to the system $\begin{cases} 2x+y=6 \\ -x+3y=1 \end{cases}$?

26.	Graph the system of inequalitites $2x - 3y < 9$ $4x + 3y \geq 9$
You are selling tickets for a basketball game. Student tickets cost $3 and general admission tickets cost $5. You sell 350 tickets and collect $1450. How many of each type of ticket did you sell? Let x = the number of student tickets and let y = the number of general admission tickets.	
27.	Write a system of equations that could be used to solve the above problem.
28.	Solve the above system of equations.
You have 240 acres of land to plant corn and oats. Profit is $40 per acre of corn and $30 per acre oats. You have 320 hours available for planting. Corn takes 2 hours to plant and oats require 1 hour to plant. You want to maximize your profit. Let x = acres of corn and let y = acres of oats	
29.	Based on the information above, what is the objective function to maximize your profit?
30.	Based on the information above, what are the constraints for this problem?
UNIT 3	
31.	If $f(x) = 3x - 5$ and the domain of f is $\{2, 4, 6\}$, what is the range of $f(x)$?

Use the following table to answer questions 32 - 34

x	y
-2	0
-3	1
-4	2
-2	3

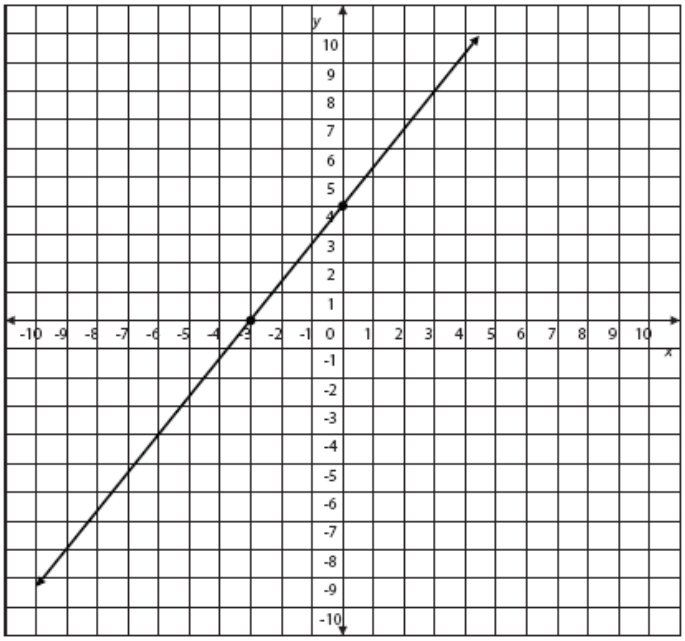
32.	True or False. The table represents a function
33.	What is the domain?
34.	What is the range?
35.	Given the graph of $f(x)$ below, what is $f(2)$? 
36.	What is the rate of change for the function $f(x)=5(2)^{\frac{x}{4}}$ over the interval [8, 12]?

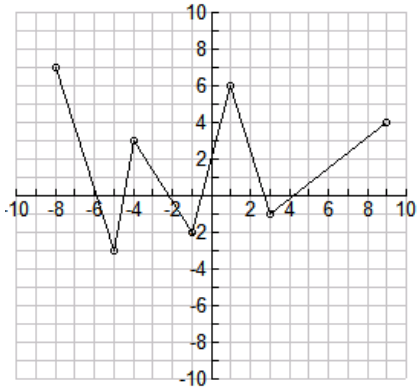
37. Compare the y-intercepts of f(x) and g(x).

$f(x)=\frac{2}{5}x-3$

x	$g(x)$
−4	−29
−2	−17
2	7
4	19

38. What is the y-intercept of the graph below?



39.	Based on the graph of the following function, find the rate of change when x increases from 3 to 9. 
40.	Draw 3 graphs that are functions and 3 that are not.