1st semester Final Exam review # 3 2012

Advanced Algebra 2:

Write an explicit formula for problems 1 & 2

1. -12,-3,6,15,24,…
2. First term of 6 and a common ration of -4
3. Find the 12th term of the sequence 16,13,10,…
4. Find the 37th term of the arithmetic sequence in which $a_3 = 15 \; and \; a_{6=}39$
5. Find the 10th term of the sequence 0.25,1,4,16,…
6. Find S_{30} in the arithmetic series with $a_1 = 15$ and $a_{30} = 521$
7. Evaluate the sum $\sum_{n=1}^{20}(6n - 52)$
8. Evaluate the sum given: 32,16,8,… find S_{10}
9. In the month of June, Becca saved 1 quarter the first day, 3 quarters the 2nd day, 5 quarters the 3rd day, and so on. How much MONEY did she save in the month of June? (June has 30 days)
10. The table below gives the price of a hamburger at a diner for selected years.

Year	1950	1955	1963	1969	1975	1982	1995	1998
Price $	0.25	0.35	0.40	0.50	0.75	1.25	1.75	1.95

Let x represent years since 1900 and let y represent the cost of a hamburger in dollars. Find the least squares line and use it to estimate to the nearest cent, the price of a hamburger at this diner in 1990.

Write the equation of the following lines:

11. Passing through the points (-2,5) and (1,7) **Standard Form**
12. Passing through the point (-2,8) with m=5 **Slope intercept form**
13. Passing through the point (1,-4) parallel to 2x-4y=7 **Point Slope form**
14. Passing through the point (5,1) perpendicular to 3x+y=-8 **Point Slope form**

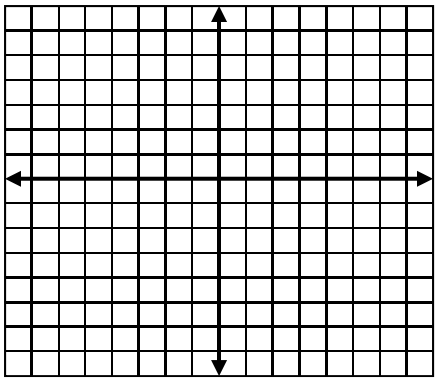
Solve the following:

15. $2(x + 3) - 4x = 17$
16. $4x + 2 \leq 22 \;\; and \;\; 3x - 5 > 31$
17. Solve for x: $3xy - 4z = 15$
18. $|2x + 5| > 7$
19. $|x - 5| \leq 10$
20. $\begin{cases} 2x - 4y = 10 \\ 5x + y = 3 \end{cases}$
21. $\begin{cases} 2x - 5y + z = -13 \\ x + y + z = 6 \\ 2y - 4z = -10 \end{cases}$
22. $2x^2 - x - 10 = 0$
23. $x^2 + 2x = -5$

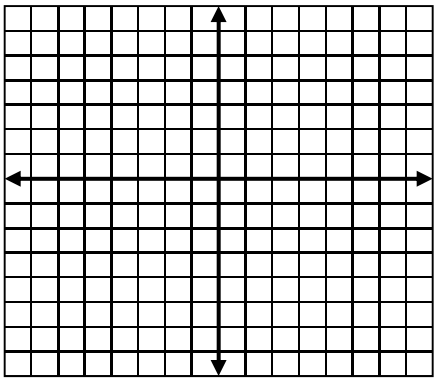
Simplify:

24. $\left(\frac{3x}{2y}\right)^2$
25. $\sqrt[3]{-54x^5y^4}$
26. $(3x^0y^2)^4$
27. $\left(\frac{4x^{-2}y^3}{3x^4y^{-2}}\right)^3$
28. $60 \div 4(7 + 3 - 5) - (3^{(5-2)} + 1)$
29. Which property is this? x+(4-x)=x+(-x+4)

30. Graph:
$\begin{cases} 4x + 2y > 6 \\ x - 2y \geq 8 \end{cases}$



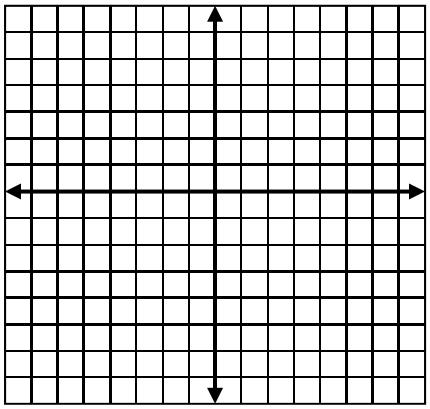
31. $\begin{cases} 5x + 4y = 12 \\ x + 4y = -4 \end{cases}$



Solution:_____

32. A) Graph the set of constraints below, find the corner points of the feasible region.

$\begin{cases} y \geq -2 \\ y \leq -x + 3 \\ y \leq x + 3 \end{cases}$



Corner points:_____

B) Find the maximum and Minimum values of C=80x+75y on the feasible region.

Maximum:_____

Minimum:_____

33. What should be added to <u>each</u> side of $x^2 + 13x + 2 = 0$ to complete the square?

34. i^{233}

35. $\frac{3+4i}{2+2i}$

36. $(5 + 7i)^2$

37. Find the following for
$f(x) = 2x - 5 \qquad g(x) = x^2 + 2$

a) $f(-3)$
b) $g(5)$
c) $f \circ g(x)$
d) $g \circ f(-2)$

38. Find the discriminant and state the number of solutions and what type they are.
a) $3x^2 - x + 2 = 0$

b) $5x - x^2 = 3$

c) $6 - x^2 = x$

39. Solve:
a) $(x - 2)^2 - 3 = 9$ d)$8x^3 + 125 = 0$

b) $x^2 - 7x + 6 = 0$ e) $x^3 - 7x^2 + 15x = 9$

c) $4x^2 = 3x - 2$ f) $x^5 - x^3 - 12x = 0$

40. Factor completely:
a) $27y^3 - 8$

b) $4x^2 + 10x - 3$

c) $3y^3 + 6y^2 - 9y$

d) $y^4 - 2y^2 - 8$

e) $36x^2 - 49y^2$

f) $2x^2 + 13xy + 6y^2$

41. Divide using synthetic division
$(x^3 - 5x + 8) \div (x - 2)$

42. Divide: $(2x^4 - x^3 + 2x^2 - 7x + 3) \div (2x - 1)$