Math 114 Pre-Test

1. Simplify. $20-5\left[36\div 3(2)\right]$

2. Solve and write the solution in interval notation. $|5-2x|\geq 21$

3. The life expectancy *y* for females born in the United States is given by the equation $y=0.16x+71.6$, where *x* is the number of years after 1950.

a) Find the life expectancy of an American female born in 1980.

b) Find and interpret the slope of the equation. **(4 pts)**

c) Find and interpret the *y*-intercept of the equation. **(4 pts)**

4. Find the equation of the line satisfying the given conditions.

Through $(-2,-4)$ and $(-4,-3)$.

5. Graph. Label at least two points on the graph.

$y\leq -\frac{1}{2}x+2$ and $y>-1$

6. Solve the system of equations.

$4x-y=9$

$\frac{2}{3}x+y=-9$

7. A first number is 4 less than a second number. Four times the first number is 6 more than twice the second. Find the numbers.

8. Simplify.

a) $-5a^7b^0c^{-9}$ b) $a^{28}a^7$ c) $\frac{x^{19}}{x^{12}}$

d) $\frac{x^{-9}}{y^{-3}}$ e) $a^4a^{-7}b^{-11}b$

9. Simplify. $\left(4x^6y^5\right)^{-2}\cdot\left(6x^4y^3\right)$

10. Solve. $x(5x-7)=-2$

11. Add or subtract as indicated. If possible, simplify your answer.

$\frac{7}{x-1}+\frac{10x}{x^2-1}-\frac{5}{x+1}$

12. Solve. $\frac{4x^2-24x}{3x^2-x-2}+\frac{3}{3x+2}=\frac{-4}{x-1}$

13. Add or subtract. $2\sqrt{50}-3\sqrt{125}+\sqrt{98}$

14. Solve. $x-\sqrt{4-x}=2$

15. Solve the inequality. Write the solution set in interval notation.

$$\frac{5}{x+1}\geq -2$$

16. Graph $f(x)=-x^2-2x+8$**. And find the following:**

Vertex:	**Axis of symmetry:**
***x*-intercepts:**	***y*-intercept:**
Rightside Up or Upside Down	
Left or Right	**# of units: _____**
Up or Down	**# of units: _____**
Narrower or Wider	**by a factor of: _____**

17. Solve. $\log_6 x+\log_6(x+1)=1$

18. The graph of the equation is a circle. Find the center and the radius and then graph the circle.

$x^2+y^2-2x+6y=6$