

Math 112 Pre-Test

- Simplify.** $20 - 5[36 \div 3(2)]$
- Solve and write the solution in interval notation.** $|5 - 2x| \geq 21$
- 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.**
 - Find the life expectancy of an American female born in 1980.
 - Find and interpret the slope of the equation. (4 pts)
 - Find and interpret the y-intercept of the equation. (4 pts)
- Find the equation of the line satisfying the given conditions.**
Through $(-2, -4)$ and $(-4, -3)$.
- Graph. Label at least two points on the graph.**
 $y \leq -\frac{1}{2}x + 2$ and $y > -1$
- Solve the system of equations.**
 $4x - y = 9$
 $\frac{2}{3}x + y = -9$
- 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.**
- Simplify.**
 - $-5a^7b^0c^{-9}$
 - $a^{28}a^7$
 - $\frac{x^{19}}{x^{12}}$
 - $\frac{x^{-9}}{y^{-3}}$
 - $a^4a^{-7}b^{-11}b$
- Simplify.** $(4x^6y^5)^{-2} \cdot (6x^4y^3)$
- Solve.** $x(5x - 7) = -2$
- Add or subtract as indicated. If possible, simplify your answer.**
 $\frac{7}{x-1} + \frac{10x}{x^2-1} - \frac{5}{x+1}$
- 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.

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