Math 199
Fall, 2005
Quiz 2 - §§1.2, 1.3

Name: **Solutions**(Pink)

Circle the letter corresponding to your answer. Circle only one answer per question. There is no partial credit on this portion of the quiz.

1. T F The domain of $f(x) = \sqrt{x+4}$ is $x \geq -4$.

   This is **True**, since we need $x + 4 \geq 0$, so that $x \geq -4$.

2. T F The equation of the line with slope 2 and $y-$intercept 3 is $y = 3x + 2$.

   This is **False**since that equation has $m = 3$ and $b = 2$, i.e. the slope is 3, and the $y-$intercept is 2.

3. The equation of the line through $(-2, -7)$ that is parallel to $3x + 5y = 11$ is

   A. $y + 7 = \frac{5}{3}(x + 2)$

   B. $y - 7 = -\frac{3}{5}(x - 2)$

   C. $y - 7 = \frac{5}{3}(x - 2)$

   D. $y + 7 = -\frac{3}{5}(x + 2)$

   E. None of the above

   Let's find the slope of $3x + 5y = 11$:

   $$5y = -3x + 11$$

   $$y = -\frac{3}{5}x + \frac{11}{5}$$

   so the slope is $-\frac{3}{5}$. The slope of the line parallel to that will have the same slope, so the equation is

   $$y - (-7) = -\frac{3}{5}(x - (-2))$$

   $$y + 7 = -\frac{3}{5}(x + 2)$$

   So the answer is D.

   For the next problem, show all work to receive full credit. No Work = No Credit.

4. The number of men in the work force (in millions) for selected decades from 1890 to 1990 can be approximated by the linear model determined by the line connecting $(1890, 18.1)$ and $(1990, 68.5)$.

(a) Find the linear model for these data.

$$m = \frac{68.5 - 18.1}{1990 - 1890} = \frac{50.4}{100} = .504$$

So the equation of the line is

$$y - 18.1 = .504(x - 1890)$$

(b) When were 53.38 million men employed?
Plug in $y = 53.38$:

$$53.38 - 18.1 = .504(x - 1890)$$
$$35.28 = .504(x - 1890)$$
$$70 = x - 1890$$
$$1960 = x$$

In 1960, there were 53.38 million men employed.