Math 111
Exam #2
Spring, 2002

Name: __________________________________
Place your answer in the spaces provided. You must show your work to receive credit.

(8 pts) 1. The function \( C \) described by \( C(F) = \frac{5}{9}(F - 32) \) gives the Celsius temperature, \( C \), corresponding to the Fahrenheit temperature \( F \). Find the Celsius temperature equivalent to \(-4^\circ F\).

(10 pts) 2. Determine the slope and \( y \)-intercept of this equation.

\[ 4x - 3y = -6 \]

\[ \text{slope} = \]
\[ \text{y-intercept} = \]

(8 pts) 3. For the given function, find:

(4 pts) a. \( f(2) \).

(4 pts) b. all \( x \)-values for which \( f(x) = 1 \).
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a. \( f(2) = \) 

\( x = \) 

(10 pts) 4. Find the value of \( k \) so that the line \( y = kx + 7 \) is parallel to the line \( 3x - 2y = 4 \).

\( k = \)

(10 pts) 5. Let \( f(x) = -2x + 4 \) and \( g(x) = x^2 - 1 \). Find and simplify each of the following:

(5 pts) a. \( (f - g)(-1) = \)

(5 pts) b. \( f(3) \cdot g(3) = \)
(10 pts) 6. Solve the following system of equations. Express your answer as an ordered pair.

\[ \begin{align*}
2x - y &= -4 \\
3y - 11 &= 4x
\end{align*} \]

(12 pts) 7. Find the x- and y-intercepts for the equation \( 3x - 4y = 12 \). Draw the graph. Label all the intercepts and at least one other point on the graph.
(10 pts) 8. Frank bought a new Honda Civic for $15,000. If Civics depreciate at a rate of $3,000/yr,
(5 pts) a. find a function $V$ that can be used to determine the value of the car $t$ years after purchase.

$$V(t) =$$

(5 pts) b. Use part (a) to find the domain of $V$.

domain =

(10 pts) 9. Tickets for the Pickled Lemon concert at Memorial Hall were $12 for students and $15 general admission. There were 950 tickets sold and the revenue from their sale was $11,634. Name the variables and translate this information into a system of equations, but do not solve.
10. According to the Almanac, the cost of mailing a letter to Canada in 1999 was 51 cents for 1 oz and 95 cents for 3 oz.

a. Find a linear function that expresses the cost $C$ of postage as a function of the weight $w$.

$$C(w) = \boxed{\text{ }}$$

b. Use the function of part (a) to determine the cost of mailing a letter that weighs 4 oz.

$$\boxed{\text{ }}$$