Math 70
Review Sheet
Test #3

Instructions: On the day of the test, bring a pencil and an eraser. You may ask questions during the test by raising your hand, but you may not otherwise talk. You will not be allowed to look at other students’ papers. Remain in your seat until you are finished with the test. If you get up from your seat that means that you are done.

10 problems will be pure algebra, similar to the following. Each will be worth 15 points:

A) Solve: \[
\begin{align*}
4x + 3y &= -35 \\
x + y &= 0
\end{align*}
\]

B) Solve: \[
\begin{align*}
8 + 3x - 4y &= 14 - 3y \\
3x + y + 12 &= 9x - y
\end{align*}
\]

C) Solve: \[
\begin{align*}
4x + 5y &= 2 \\
-8x - 10y &= 6
\end{align*}
\]

D) Solve: \[
\begin{align*}
2x + y &= 5 \\
-4x + 6y &= 12
\end{align*}
\]

E) Graph the inequality \(3x - y > 0\)

F) Graph the solution set: \[
\begin{align*}
2x + 7y &\leq 14 \\
x - y &> 1
\end{align*}
\]

G) If \(f(x) = -4x + 8\), find \(f(-3)\)

H) Simplify: \[
\frac{4a^2 + 9a + 2}{3a^2 + 11a + 10} + \frac{4a^2 + 17a + 4}{3a^2 + 2a - 5}
\]

I) Simplify: \[
\frac{3}{2m^2 - 9m - 5} - \frac{m + 1}{2m^2 - m - 1}
\]

J) Simplify: \[
\frac{1}{x-2} + \frac{8}{x+3}
\]

K) Solve: \[
\frac{1}{r+5} - \frac{3}{r-5} = \frac{-10}{r^2 - 25}
\]

L) For this pair of similar triangles, determine the size of the missing side:

![Diagram of triangles]
There will also be 5 word problems like the following, worth 10 points each:

1) A 25% solution of alcohol is to be mixed with a 40% solution to get 50 liters of a final mixture that is 30% alcohol. How much of each of the original solutions should be used?

2) Decide if this graph could be the graph of a function: Explain why.

a) ![Graph A]

b) ![Graph B]

c) ![Graph C]

3) A man can paint a room in his house, working alone, in 5 hours. His wife can do the same job in 4 hours. How long will it take them to paint the room if they work together?

4) Mr. Adams drove from Modesto, California to Cheyenne, Wyoming to help the government with their missile defense system. He averaged a speed of 50 mph. Once there, he realized that he could have saved 3 hours of driving if he had averaged 60 mph. How far is it from Modesto to Cheyenne?

5) Little Elroy Jetson is trying to empty all of his toys out of his closet, but his housekeeping robot, the CleanBot3000, keeps putting the toys back at the same time. Even in the face of this resistance, Elroy is still able to get the closet empty in 20 minutes. If Elroy pulls toys out 3 times as fast as the CleanBot3000 can put them back, how quickly could Elroy have gotten his toys out if he had first turned off the robot?

6) A network cable 6 feet long cost $12.95. How much should a 20 foot long network cable cost, to the nearest penny?