Math 207 Section A, Quiz 6 Name: _____

No credit for answers unaccompanied by a clear justification. You must show your work!

Cheating will not be tolerated. If there is any indication that a student may have given or received unauthorized aid on this test, the case will be handed over immediately to the ISU Office of Judicial Affairs.

1. (6 points) Determine whether the set S spans R^2. If the set does not span R^2, then give a geometric description of the subspace that it does span.

$$S = \{(3,2), (6,4), (\frac{3}{2}, 1)\}$$

Show your work here:

Answer here: (fill in the circle next to the correct answer)

- ○ S spans R^2
- ○ S spans a point in R^2
- ○ S spans a line in R^2
- ○ S spans a plane in R^2

2. (6 points) Consider the following set of vectors in R^2

$$S = \{s_1, s_2, s_3\} = \{(3,2), (1,1), (2,0)\}.$$

Show that S is linearly dependent by writing s_1 as a linear combination of s_2 and s_3.

Show your work here:

Answer here:

$$s_1 = \qquad s_2 \quad + \qquad s_3$$

3. (6 points) For the set S in Question 2, say whether each statement below is true or false. Write your answer on the line provided.

   (a) The set S is a basis for R^2 _____

   (b) The vectors in S span R^2 _____

   (c) The vectors in S span R^3 _____

When you finish the test, acknowledge that you understand the cheating policy by signing the following pledge:

"On my honor as a student I, _____, have neither given nor received unauthorized aid on this test." (Print Name)

Signature: _____ Date: _____