Finite or Infinite Area

GROUP MEMBERS:

1. _____________________________
2. _____________________________
3. ______________________________
4. ______________________________

Goal: Explore the concept of infinite area.

Each person take one copy of the attached sheets.

**Group Roles:** Reader – she reads the worksheet to the group. (Person 1)
Leader – makes sure the group stays on task, follows directions and that all members are getting to participate. (Person 2)
Questioner– the one person in the group who can ask the professor questions. (Person 3)
Reporter –She will report the group’s answers. (Person 4)

After class discussion, each person in the group will evaluate the area of one of the problems. Do this on the back of your individual sheet. People can choose whichever example they want, providing all the examples get done. Then they will report back to the group their result and write out how they did the problem (below). They will conclude by stating whether the integral converges or diverges to infinity.

1. \[ \int_{1}^{\infty} x^2 \, dx = \]

2. \[ \int_{1}^{\infty} \frac{1}{1 + x^2} \, dx = \]

3. \[ \int_{1}^{\infty} \frac{1}{x} \, dx = \]
Name:

1. Consider the function \( y = x^2 \) and the area under the curve for \( x \in [1, \infty) \).

\[
x^2
\]

Is the area finite or infinite? Circle one  

Finite  

Infinite

2. Consider the function \( y = \frac{1}{1 + x^2} \) and the area under the curve for \( x \in [1, \infty) \).

\[
\frac{1}{1 + x^2}
\]

Is the area finite or infinite? Circle one  

Finite  

Infinite

3. Consider the function \( y = \frac{1}{x} \) and the area under the curve for \( x \in [1, \infty) \).

\[
\frac{1}{x}
\]

Is the area finite or infinite? Circle one  

Finite  

Infinite