Directions: Show all work for full credit. Clearly indicate all answers. Simplify all mathematical expressions completely. Each part of each question is worth 13 points.

1. Solve the following equation by factoring:

$$3y^2 - 2 = -y$$

2. Perform the following operations and simplify:

a.
$$\frac{8u^2v}{3u+v} \cdot \frac{u+v}{12u}$$

b.
$$\frac{3(a+b)}{4} \div \frac{(a+b)^2}{2}$$