Show all work clearly and in order, and circle your final answers.
Justify your answers algebraically whenever possible.

1. (*3 points*) Consider this problem: "A ladder 5 feet long rests against
a vertical wall. If the bottom of the ladder slides away from the wall at a
rate of $2\frac{ft}{s}$, how fast is the top of the ladder sliding down the wall when
the bottom of the ladder is 5 feet from the wall?"

a) Draw a picture representing this situation below. Label all relevant
variables.

b) What equation do you need to differentiate in this problem and
what is it after you differentiate?

Before:

After:

c) Give me the final answer to the question, using your result in (b).

2. (*3 points*) Consider this problem: "If a snowball melts so that its
surface area decreases at a rate of $1\frac{cm^2}{min}$, find the rate at which the diameter
decreases when the diameter is $10cm$."

a) Draw a picture representing this situation below. Label all relevant
variables.

b) What equation do you need to differentiate in this problem and
what is it after you differentiate?

Before:

After:

c) Give me the final answer to the question, using your result in (b).