Suppose the tax rate is 30% if taxable income Is positive and 0%, if taxable income is negative, Calculate the expected tax payable for the following four projects. Note that for each project the expected taxable income is $50,000. For each project, also calculate the expected average tax rate (expected total taxes divided by expected taxable income). Explain and discuss your result.

1. Certain payoff $50,000.
2. A 50% chance of $100,000 and a 50% chance of $0.
3. A 50% chance of $200,000 and a 50% chance of a loss of $100,000.
4. A 50% chance of $500,000 and a 50% chance of a loss of $400,000.

Solve by using a graph and also show calcuations:

1. Draw in the tax rate schedule for taxable income in the range - $500,000 to + $500,000 with taxable income on the horizontal axis and tax payable on the vertical axis.
2. Mark the two endpoints on the tax schedule for each project. (For project 2 the two endpoints are $0 and $50,000.) Draw a straight line between the two outcomes.
3. Draw a vertical line upward from the horizontal axis at taxable income equal to $50,000.
4. Finally, red off the line expected tax payable for each project where the expected tax payable is the intersection point of the lines in (2) and (3).