The normal distribution is widely used for a variety of applications in statistics and other fields because of its simplicity and accuracy in estimation. However, most financial and insurance data are skewed and have “fat tails.” Hence, symmetric distributions may not be good choices for analyzing such data. In this paper, we use unified skew-normal density function to approximate the distribution of terminal wealth of a portfolio. We find that the results describing the terminal wealth obtained from approximations are competitive to those obtained from a more time consuming Monte Carlo method.