PROBABILITY AND STATISTICS – PROBLEM SET 6

1. If $Z \sim N(0,1)$, compute
   (a) $P[Z < 1]$
   (b) $P[Z < 2.4]$
   (c) $P[1 < Z < 2.4]$
   (d) $P[Z < -1]$
   (e) $P[-2.4 < Z < 1]$.
2. If $X \sim N(175, 25)$, compute
   (a) $P[X < 200]$
   (b) $P[X < 235]$
   (c) $P[200 < X < 235]$
   (d) $P[X < 150]$
   (e) $P[115 < X < 200]$.
3. In a normal distribution, 31% of the observations are under 45 and 8% are over 64. Find the mean and standard deviation.
4. Suppose that the life lengths of two electronic devices D_1 and D_2 have distributions $N(40, 36)$ and $N(45, 9)$ respectively. If the device is to be used for a 48 hour period, which device is to be preferred?