Math 342 —Normal distribution

Problem 1. Let $X \sim N(-4, 25)$. Find the approximate value of the following probabilities using the 68-95-99.7 rule.

    a. $P(-14 < X < 6)$

    b. $P(X > 1)$

    c. $P(-9 < X < 6)$

Problem 2. Let $X \sim N(-4, 25)$. Find the following probabilities with R.

    a. $P(|X| < 2)$

    b. $P(e^X < 1)$

    c. $P(X^2 > 3)$

Problem 3. The length of human pregnancy is normally distributed with mean $\mu = 270$ and standard deviation $\sigma = 10$ days. Find the probability that a random pregnancy takes longer than 290 days or less than 240 days.