% Given parameters

mu = 30; % Mean of the normal distribution

sigma = 5; % Standard deviation

% i. P(26 ≤ X ≤ 40)

p1 = normcdf(40, mu, sigma) - normcdf(26, mu, sigma);

% ii. P(X ≥ 45)

p2 = 1 - normcdf(45, mu, sigma);

% iii. P(|X - 30| ≤ 5), equivalent to P(25 ≤ X ≤ 35)

p3 = normcdf(35, mu, sigma) - normcdf(25, mu, sigma);

% iv. P(|X - 30| ≥ 5), equivalent to P(X ≤ 25 or X ≥ 35)

p4 = normcdf(25, mu, sigma) + (1 - normcdf(35, mu, sigma));

% Display results

fprintf('i. P(26 ≤ X ≤ 40) = %.4f\n', p1);

fprintf('ii. P(X ≥ 45) = %.4f\n', p2);

fprintf('iii. P(|X - 30| ≤ 5) = %.4f\n', p3);

fprintf('iv. P(|X - 30| ≥ 5) = %.4f\n', p4);