Problem 8

The Probability of a single bit falling within 40% area is $\frac{40}{100} = 0.4$

Probability of all 5 bits within 40% filled section is $\left(\frac{40}{100}\right)^5 = (0.4)^5$

$= (0.4) \times (0.4) \times (0.4) \times (0.4) \times (0.4)$

$\approx \boxed{0.01024}$

After simulating in c++, the probability of five bits in 40% area is $\boxed{\approx 0.01022}$ around

So, simulation result (≈ 0.01022) is close to calculation result (≈ 0.01024).