Question 1

1) Bathroom = B Listing price = LP

$P(B=1 \mid LP<5) = 4/4$

$P(B=1 \mid 5 \le LP < 6) = 4/4$

$P(B=1 \mid 6 \le LP) = 2/7$

$P(B=1.5 \mid LP<5) = 0/4$

$P(B=1.5 \mid 5 \le LP < 6) = 0/4$

$P(B=1.5 \mid 6 \le LP) = 3/7$

$P(B=2.5 \mid LP<5) = 0/4$

$P(B=2.5 \mid 5 \le LP < 6) = 0/4$

$P(B=2.5 \mid 6 \le LP) = 2/7$

Bathrooms	LP < 5	5 ≤ LP < 6	6 ≤ LP
1	4/4	4/4	2/7
1.5	0/4	0/4	3/7
2.5	0/4	0/4	2/7

Land Area = LA

	LP < 5	5 ≤ LP < 6	6 ≤ LP
μ_{LA}	6.2646	3.563	6.2154	7.8677
σ_{LA}	2.5945	0.9487	2.1069	2.6609

$$P(LA \mid LP) = \frac{1}{\sqrt{2\pi}\,\sigma_{LA}} \exp\left(-\frac{(LA-\mu_{LA})^2}{2\sigma_{LA}^2}\right)$$

$$P(LA \mid LP<5) = \frac{1}{\sqrt{2\pi}\,(0.9487)} \exp\left(-\frac{(LA-3.563)^2}{2(0.9487)^2}\right)$$

$$P(LA \mid 5 \le LP<6) = \frac{1}{\sqrt{2\pi}\,(2.1069)} \exp\left(-\frac{(LA-6.2154)^2}{2(2.1069)^2}\right)$$

$$P(LA \mid 6 \le LP) = \frac{1}{\sqrt{2\pi}\,(2.6609)} \exp\left(-\frac{(LA-7.8677)^2}{2(2.6609)^2}\right)$$