1. $\mathrm{P}(A|B) = \frac{\text{P(A and B)}}{\mathrm{P}(B)}$

2. $\mathrm{P}(AandB) = \mathrm{P}(A|B)\mathrm{P}(B)$

3. $\mathrm{P}(AorB) = \mathrm{P}(A) + \mathrm{P}(B) - \mathrm{P}(AandB)$

4. If indpt, $\mathrm{P}(A|B) = P(A)$

5. $E(X) \equiv \mu = \sum xP(X = x)$

6. $Var(X) \equiv \sigma^2 = \sum (x - \mu)^2 P(X = x)$

7. $E(X \pm c) = E(X) \pm c$

8. $Var(X \pm c) = Var(X)$

9. $E(X \pm Y) = E(X) \pm E(Y)$

10. $E(aX) = aE(X)$

11. $Var(X \pm Y) = Var(X) + Var(Y)$ only if X and Y indpt.

12. The sampling distribution model for a sample proportion is, if certain conditions are met, modeled by the Normal model with mean equal to the true proportion, p, and standard error equal to $\sqrt{\frac{p(1-p)}{n}}$

13. For a 95% confidence interval, use $z^* = 1.96$. For 90% use $z^* = 1.64$. For 99% use $z^* = 2.57$

14. If the null hypothesis says the population proportion (or probability) is p_0, then the test statistic is $Z = \frac{\hat{p} - p_0}{\sqrt{p_0(1-p_0)/n}}$

15. The p-value is $\mathrm{P}(Z > z_{observed})$ if the alternative hypothesis is $p > p_0$. It is $\mathrm{P}(Z < z_{observed})$ if the alternative is $p < p_0$.

16. A CI for the difference in proportions in two groups is $(\hat{p}_a - \hat{p}_b) \pm z^* \sqrt{\frac{\hat{p}_a \hat{q}_a}{n_a} + \frac{\hat{p}_b \hat{q}_b}{n_b}}$ where z^* is chosen using (13) above. n_a and n_b are the sample sizes in groups a and b; $\hat{p}$ and $\hat{q}$ are the sample proportion for group a and 1 minus the sample proportion in group a. Similarly for group b.