Answers for Quiz 2

Multiple Choice

1. B
2. C
3. B
4. B
5. D
6. B
7. B
8. A
9. A
10. C
11. B
12. B
13. C
14. A
15. D
16. B
17. D
18. C
19. B
20. B

Answer the Questions

1. $$\frac{66-50}{8}=2$$

Above, since z-score>0

2. $$\begin{aligned} P(pos) &= P(pos|dis)*P(dis)+P(pos|\neg dis)*P(\neg dis) \\ &= 0.9*0.1+0.2*0.9=0.27 \\ P(dis|pos) &= \frac{P(pos|dis)P(dis)}{P(pos)} \\ &= \frac{0.9*0.1}{0.27}\simeq 33.33\% \end{aligned}$$

3.

$$L(x_1, x_2, x_3|\theta) = (\frac{\theta}{2})^2(1-\frac{\theta}{2})^1$$
$$\theta = 0:$$
$$L(1,0,1|\theta) = 0$$
$$\theta = 1:$$
$$L(1,0,1|\theta) = \frac{1}{4}\cdot\frac{1}{2} = \frac{1}{8}$$
$$\theta = 2:$$
$$L(1,0,1|\theta) = 0$$

When $\theta = 1$, the probability is the largest.

4. a)

$$\frac{5+7+5+11}{4} = 7$$

b)

$$Variance = \frac{4+0+4+16}{4-1} = 8$$
$$Standard\ deviation = 2\sqrt{2}$$

c)

$$\frac{7-6}{\sqrt{8}/\sqrt{4}} = 1/\sqrt{2} \simeq 0.707$$