Hints and Answers for the problems

(1) $F_Y(y) = y$

(2) (a) $F_X(x) = \begin{cases} 0 & x < -2 \\ \frac{x+2}{4} & -2 \leq x \leq 2 \\ 1 & x > 2 \end{cases}$

(b) $f_Y(y) = 0.25(u(y+1) - u(y-3))$

(c) $F_Z(z) = \begin{cases} 0 & z < -4 \\ \frac{z+4}{8} & -4 \leq z \leq 4 \\ 1 & z > 4 \end{cases}$

PDF=$f_Z(z) = \begin{cases} \frac{1}{8} & -4 \leq z \leq 4 \\ 0 & otherwise \end{cases}$

(3) (a)

$$\frac{e^{\frac{-(logx-\mu)^2}{2\sigma^2}}}{x\sigma\sqrt{2\pi}}$$

(b)

$$exp(\mu + \frac{\sigma^2}{2})$$

(4) Refer to any standard text.

(5) $\frac{3}{4}$

(6) $\frac{4}{15}$

(7) 0.88

(8) $\frac{5-7e^{-2/5}}{1-e^{-2/5}}$

(9) $\frac{1}{6}$

(10) $P[\mid X - 350 \mid \geq 50] \leq \frac{7}{60}$

(11) $P(X \geq \frac{3n}{4}) \leq \frac{4}{n}$

(12) (a) $\frac{2}{3}$
(b) 0.9995, 0.00008

(13) (a) 0.0874
(b) 0.8790
(c) 0.8413
(d) 226,200

(14) 0.4322

(15) (a) 0.0401
(b) 7.31 hours

(16) https://inst.eecs.berkeley.edu/ cs174/fa10/sol3.pdf
7th question in the link.