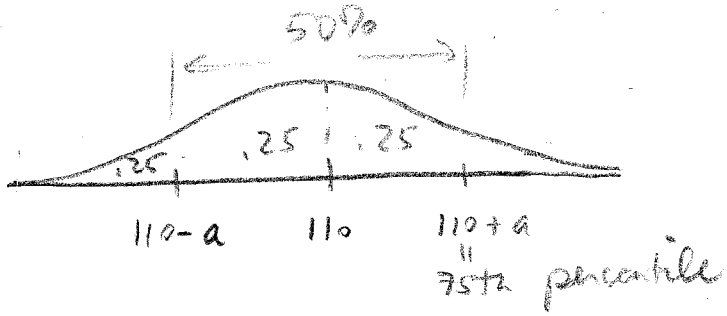
#5 (#8, pg. 281)

$$P(\text{hypertensive}) = P(DBP \geq 95)$$
$$= P\left(Z_1 \geq \frac{95-80}{7}\right)$$
$$= 1 - \Phi(2.14) = 1 - .9838 = \underline{.0162}$$
$$\text{or } \underline{1.6\%}$$

$$P(\text{mild hypertensive}) = P(89 \leq DBP < 95)$$
$$= \Phi(2.14) - \Phi(1.29)$$
$$= .9838 - .9015 = \underline{.0823}$$
$$\text{or } \underline{8.2\%}$$

#6 (#10, pg. 281) $IQ \sim \text{Normal}(\mu = 110, \sigma = 20)$

Interval centered on $\mu = 110$ containing 50%



$$P(IQ \leq 110 + a) = .75$$
$$\text{or } P\left(Z_1 \leq \underbrace{\frac{110+a-110}{20}}_{= .67 \ (\text{or } .68)}\right) = .75$$

$$\frac{a}{20} = .67 \text{ or } a = 13.4$$

$$\therefore \boxed{\text{Interval: } (110 - 13.4,\ 110 + 13.4) \text{ or } (96.6,\ 123.4)}$$