Thea Ethan west classwork Stat 151 11/11

Blood glucose levels for women (40 years of age) are roughly normal with

$\mu = 90$ mg/dl and $\sigma = 20$ mg/dl

1) What proportion have levels greater than 130 mg/dl

$$P(X > 130) = P\left(\frac{X-\mu}{\sigma} > \frac{130-90}{20}\right) = P(z > 2) = 1 - P(z \leq 2)$$
$$= 1 - 0.9772$$
$$= \boxed{0.0228}$$

2) What proportion have levels between 90 and 130 mg/dl

$$P(90 < X < 130) = P(0 < X < 2) = 0.9772 - 0.5$$
$$= \boxed{.4772}$$

3) How high does ones glucose levels have to be in order to be at the 90th percentile.

$z^* \approx 1.283$

$$1.283 = \frac{x^* - 90}{20} \Rightarrow x^* = 1.283(20) + 90 = \boxed{115.66}$$