19. We want to find $c$ such that

$$P(X > c) = 0.1$$

$$\iff P\left(\frac{X - 12}{2} > \frac{c - 12}{2}\right) = 0.1$$

$$\iff P\left(Z > \frac{c - 12}{2}\right) = 0.1 \quad \text{where } Z \text{ is std normal}$$

$$\iff 1 - \Phi\left(\frac{c - 12}{2}\right) = 0.1$$

$$\iff \frac{c - 12}{2} = 1.28 \quad \text{from Table 5.1}$$

$$\iff c = 14.56$$