3C Finding Values From Probabilities (Inverse Function)
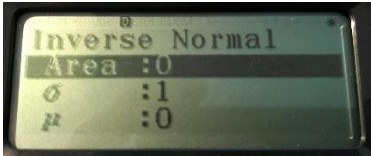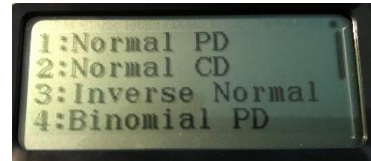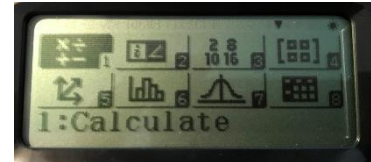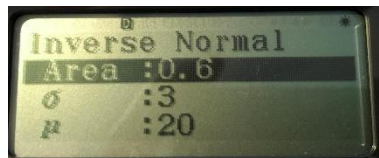
1. Given that $X \sim N(20, 3^2)$, find, to two decimal places, the values of a such that:

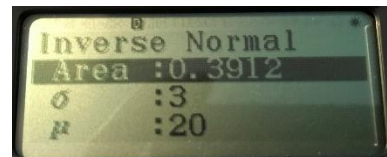a) $P(X < a) = 0.75$
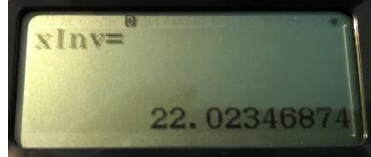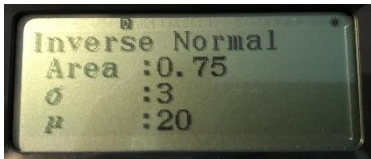
b) $P(X > a) = 0.4$

c) $P(16 < X < a) = 0.3$

2. Plates made using a particular manufacturing process have a diameter, $D\ cm$, which can be modelled using a normal distribution, $D \sim N(20, 1.5^2)$.

a) Given that 60% of plates are less than $x\ cm$, find the value of x.

b) Find the interquartile range of the plate diameters