a) $\mu_{\bar{x}} = \mu$

$\mu_{\bar{x}} = 18$ credit hours / ~~\$~~ year

b) $\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}} = \frac{4}{\sqrt{75}}$

$= \underline{\underline{0.46}}$

c) $P(\bar{x} < 17)$

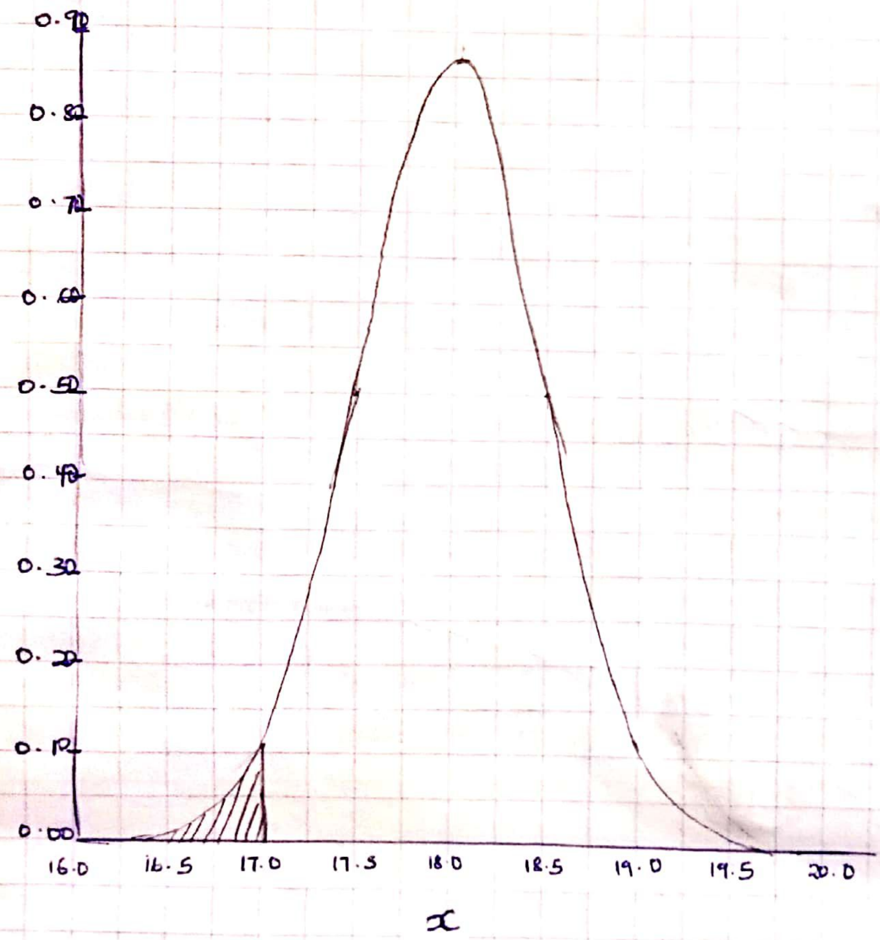
$$z = \frac{X - \mu}{\sigma/\sqrt{n}} = \frac{17 - 18}{4/\sqrt{75}} = -2.1651$$

therefore,

$$P(\bar{x} \leq 17) = P\left(z < \frac{17-18}{4/\sqrt{75}}\right) = P(z < -2.1651)$$

$= 0.0152$ $= \underline{\underline{0.015}}$ (3dp)

d)



e) $P(17.5 < \bar{x} < 18.6)$

$$Z_1 = \frac{\bar{x}_1 - \mu}{\sigma/\sqrt{n}} = \frac{17.5 - 18}{4/\sqrt{75}} = -1.0825$$

$$Z_2 = \frac{\bar{x}_2 - \mu}{\sigma/\sqrt{n}} = \frac{18.6 - 18}{4/\sqrt{75}} = 1.299$$

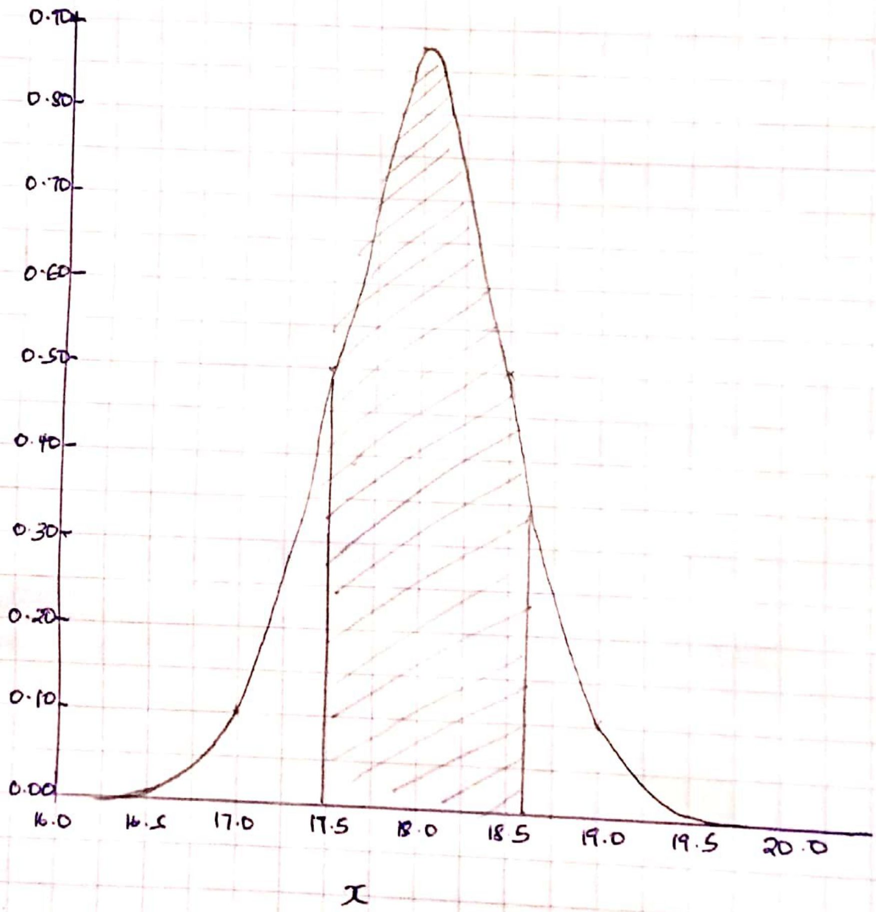
$$= P(17.5 \leq \bar{x} < 18.6) = P(-1.0825 < Z < 1.299)$$

$$= P(Z < 1.299) - P(Z < -1.0825) =$$

$$= 0.903 - 0.1395$$

$$= \underline{\underline{0.764}} \text{ (3dp)}$$

f)



g) $P(\bar{x} > 18.7)$

$$z = \frac{\bar{x} - \mu}{\sigma/\sqrt{n}} = \frac{18.7 - 18}{4/\sqrt{75}} = 1.5155$$

$$P(\bar{x} > 18.7) = P(z > 1.5155)$$
$$= 1 - 0.9352$$
$$= \underline{\underline{0.065}} \ (3dp)$$

h)