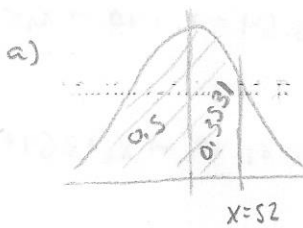


33) The scores of a group of subjects is one variable following the normal law, with a mean of 40 and standard deviation of 8. With this data:

- a) Calculate the percentage of people who obtain a raw score equal to or less than 52.
- b) Calculate the percentage of people with scores between 24 and 48.
- c) Calculate the percentage of people with one score equal to or less than 30.
- d) Which score leaves below itself 60% of the cases?
- e) Which is the minimum score of 60% of subjects with higher scores?
- f) Calculate the two scores among which are the central 95% of the data.
- g) Which score delimit the 28% most extreme data?
- h) Which raw score leaves above itself 10% of the cases?
- i) Calculate the percentile 40.

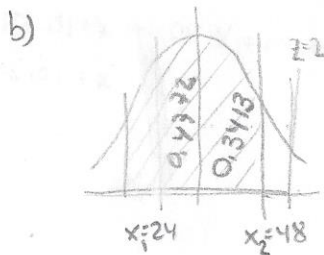
$\bar{X} = 40$   
 $S = 8$



$$z = \frac{X - \bar{X}}{S} = \frac{52 - 40}{8} = \frac{12}{8} = 1.5$$

$$p = 0.5 + 0.4332 = 0.9332$$

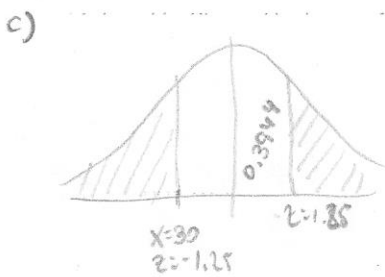
$$\% = 93.32$$



$$z_1 = \frac{X - \bar{X}}{S} = \frac{48 - 40}{8} = \frac{8}{8} = 1 \rightarrow p(z=1) = 0.3413$$

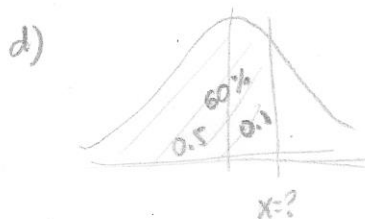
$$z_2 = \frac{X - \bar{X}}{S} = \frac{24 - 40}{8} = \frac{-16}{8} = -2 \rightarrow p(z=-2) = 0.4772$$

$$P(-2 \leq z \leq 1) = 0.3413 + 0.4772 = 0.8185 \rightarrow \% = 81.85$$



$$z = \frac{X - \bar{X}}{S} = \frac{30 - 40}{8} = -1.25$$

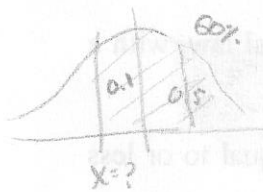
$$P(z \leq 30) = 0.5 - 0.3944 = 0.1056 \rightarrow \% = 10.56$$



$$p = 0.6 \rightarrow z = 0.25$$

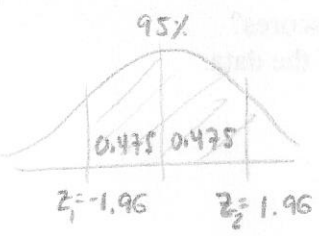
$$z = \frac{X - \bar{X}}{S} \rightarrow 0.25 = \frac{X - 40}{8} \rightarrow 8 \cdot 0.25 = X - 40 \rightarrow 2 = X - 40 \rightarrow 42 = X$$

e)  $z = -0.25$



$$z = -0.25 = \frac{X - \bar{X}}{s} \rightarrow -0.25 = \frac{X - 40}{8} \rightarrow -2 = X - 40 \rightarrow X = -2 + 40 = 38$$

b)



$$z = \frac{X_1 - \bar{X}}{s} \rightarrow -1.96 = \frac{X_1 - 40}{8} \rightarrow -15.68 = X_1 - 40$$

$$-15.68 + 40 = X_1$$

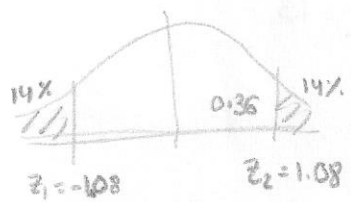
$$\boxed{24.32 = X_1}$$

$$1.96 = \frac{X_2 - 40}{8} \rightarrow 15.68 = X_2 - 40$$

$$15.68 + 40 = X_2$$

$$\boxed{55.68 = X_2}$$

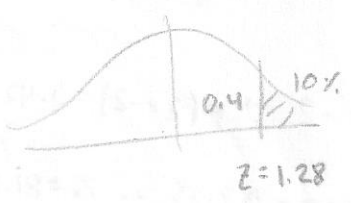
c)



$$z = \frac{X_1 - \bar{X}}{s} \rightarrow -1.08 = \frac{X_1 - 40}{8} \rightarrow -8.64 = X_1 - 40 \rightarrow X_1 = 8.64 + 40 = 48.64$$

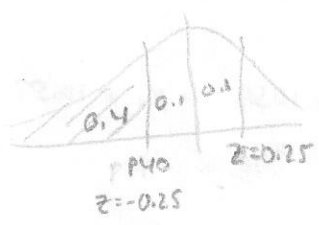
$$1.08 = \frac{X_2 - 40}{8} \rightarrow 8.64 = X_2 - 40 \rightarrow X_2 = 8.64 + 40 = 48.64$$

w)



$$z = \frac{X - \bar{X}}{s} \rightarrow 1.28 = \frac{X - 40}{8} \rightarrow 10.24 = X - 40 \rightarrow X = 10.24 + 40 = 50.24$$

i) = e)



$$z = \frac{X - \bar{X}}{s} \rightarrow -0.25 = \frac{X - 40}{8} \rightarrow -2 = X - 40 \rightarrow X = -2 + 40 = 38$$