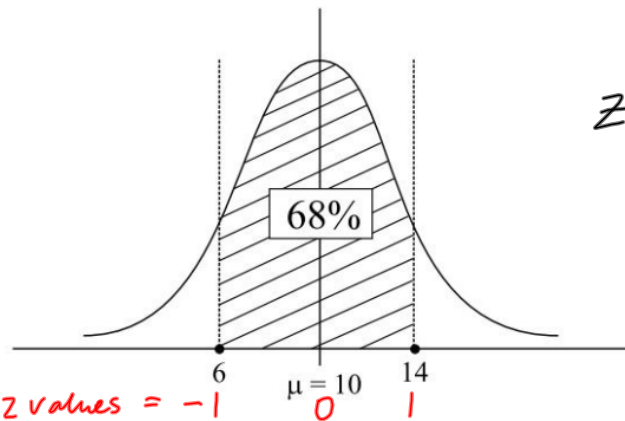


Question 4

(25 marks)

A normal distribution has a mean of 10 and 68% of the data lies between 6 and 14.



$$Z = \frac{X - \mu}{\sigma}$$

$$Z\sigma + \mu = X$$

- (a) (i) What is the standard deviation and the median?

STANDARD DEVIATION = 4

MEDIAN = 10

- (ii) Find the z values of 10, 14 and 6.

- (b) The standard normal distribution has a mean of 0 and standard deviation of 1 and has the same shape and area distribution as the original normal distribution.

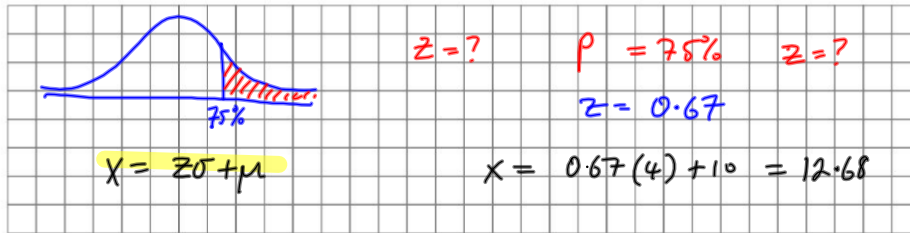
(c)

$$Z = \frac{X - \mu}{\sigma}$$

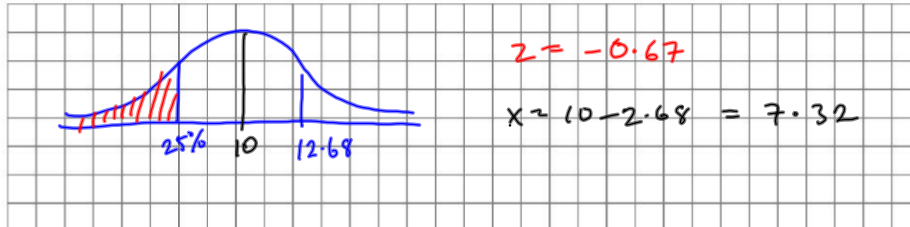
$$\Rightarrow X = Z\sigma + \mu$$

(c) Find from this normal distribution:

(i) the upper quartile,



(ii) the lower quartile,



(iii) the inter-quartile range.

