Question 2

a) Suppose the owner of a bakery knows that the mean daily demand for his wholemeal bread is 400 loaves and the standard deviation is 20. What is the probability that the demand for its bread will be up to 450 loaves?

The normal distibiution is most appropriate for this calculation as it is used to describe variables. The given information of a mean and standard deviation is aligning with the normal distribution.

μ (Mean)=400

σ (Std deviation) = 20

X (Demand) = 450

$Z=(x-\mu)/\sigma=(450-400)/20=2.5$

$P(x<450)=0.5+0.4938=0.9938$

Probability = 0.9938

b) In a school of 320 students, 85 students are in the band, 120 students are on sports teams, and 60 students participate in both activities. If a student is selected randomly, what is the probability that the student will participate in any of the activities?

A – students participate in the band

B – students participate in the sports

S – total number of students

A=85

B=120

S=320

A and B = 60

P (A or B) = P(A) + P (B) - P (A and B)=85/320+120/320-60/320= 0.453125

Probability that students will participate in any activities is 0.453125 or 45.3125%