

Men's shirt sizes are determined by their neck sizes. Suppose that men's neck sizes are approximately normally distributed with mean 15.7 inches and standard deviation 0.7 inch. A retailer sells men's shirts in sizes S, M, L, XL, where the shirt sizes are defined in the table below.

Shirt size	Neck size
S	$14 \leq \text{neck size} < 15$
M	$15 \leq \text{neck size} < 16$
L	$16 \leq \text{neck size} < 17$
XL	$17 \leq \text{neck size} < 18$

- Because the retailer only stocks the sizes listed above, what proportion of customers will find that the retailer does not carry any shirts in their sizes? Show your work.
- Using a sketch of a normal curve, illustrate the proportion of men whose shirt size is M. Calculate this proportion.
- Of 12 randomly selected customers, what is the probability that exactly 4 will request size M? Show your work.