# ENGEN102 – Statistics Workshop 1

One-litre milk bottles are subject to variation due to various processes in the bottling stage of production. A Normally distributed random variable, with a mean of 999.2 millilitres and a standard deviation of 10 millilitres, can model the volume of milk in a randomly selected milk bottle.

Use this information to answer the following questions.

1. Suppose we observe a milk bottle with one litre of milk (1000 millilitres). How far away is this observation from the mean in standard deviation units?
2. -0.08
3. -0.16
4. -0.04
5. -0.08
6. -1
7. What is the probability that a randomly selected milk bottle contains less than one litre of milk (1000 millilitres)?
8. 0.5319
9. 0.4681
10. 0.7721
11. 0.5000
12. 1.0000
13. What is the probability that a randomly selected milk bottle contains between 990 and 1010 millilitres of milk?
14. 0.6811
15. 0.3212
16. 0.8599
17. 0.6800
18. 0.6822
19. Suppose that milk bottles were sold in boxes of 25, and we wanted to use a random variable, , to model the average volume of milk in a box. Which of the following probability distributions should follow?
20. Find the probability that a randomly selected box of 25 milk bottles has an average volume of less than one litre of milk (1000 millilitres).
21. 0.6554
22. 0.5319
23. 0.9999
24. 0.0001
25. 0.9544