NCFE PRACTICE #6

(1) Suppose the function $H(t) = 8.5\sin(0.017t - 1.35) + 12$ models the hours of sunlight for a town in Alaska, where $t = 1$ is the first day of the year. Based on the function, what is the ***approximate*** range of daylight hours for the town?

A 3.5 to 20.5

B 4 to 20

C 4.5 to 19.5

D 5 to 19

(2) The graph of the function $f(x) = x^3$ will be shifted down 2 units and to the right 3 units. Which is the function that corresponds to the resulting graph?

A $g(x) = (x + 3)^3 + 2$

B $g(x) = (x + 3)^3 - 2$

C $g(x) = (x - 3)^3 + 2$

D $g(x) = (x - 3)^3 - 2$

(3) A manufacturing plant produces a special kind of lightbulb.

- Each lightbulb produced has a 0.040 probability of being defective.
- Five lightbulbs are chosen at random from the production line.

To the nearest thousandth, what is the probability that exactly two of the five bulbs will be defective?

A 0.014

B 0.016

C 0.018

D 0.020