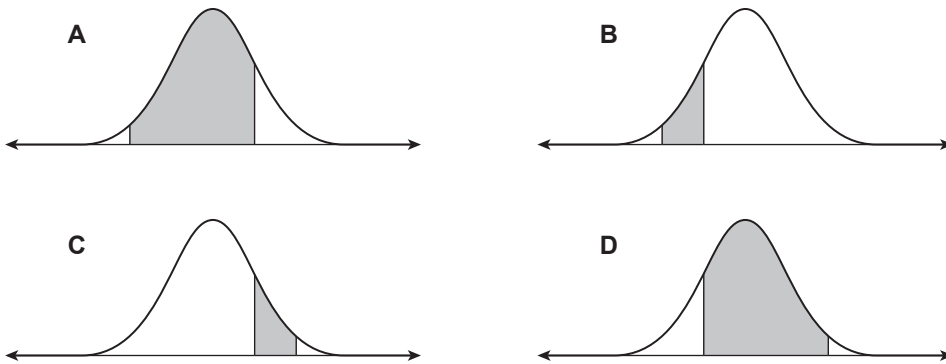**Question 2** (5 marks)

(a) Each of the graphs below represents the normal distribution with mean $\mu = 0$ and standard deviation $\sigma = 1$.

Z is a normally distributed random variable with mean $\mu = 0$ and standard deviation $\sigma = 1$.

Which *one* of graphs **A**, **B**, **C**, and **D** best illustrates $\Pr(Z \geq 1)$?

(1 mark)

(b) The graph below represents the normal distribution with mean $\mu = 40$ and standard deviation $\sigma = 10$.

On the graph above, write a number in each box to provide a horizontal scale for this distribution.

(2 marks)

(c) Each of the graphs below represents the normal distribution with mean $\mu = 12$ and standard deviation $\sigma = 2$.

Y is a normally distributed random variable with mean $\mu = 12$ and standard deviation $\sigma = 2$.

Which *one* of graphs **A**, **B**, **C**, and **D** above best illustrates $\Pr(10 \leq Y \leq 16)$?

(1 mark)

(d) Each of the graphs below represents the normal distribution with mean $\mu = 120$ and standard deviation $\sigma = 40$.
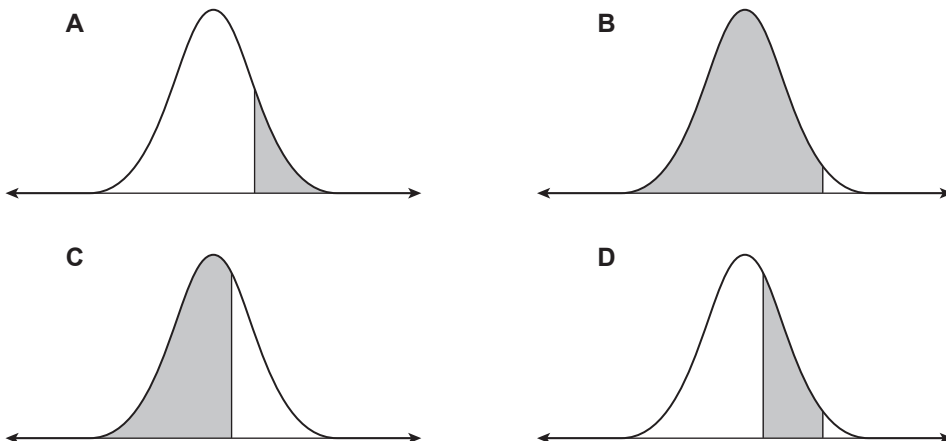
X is a normally distributed random variable with mean $\mu = 120$ and standard deviation $\sigma = 40$.

Which *one* of graphs **A**, **B**, **C**, and **D** best illustrates $\Pr(X \leq 140)$?

(1 mark)