Solution to example 6

Cards				
17% of people registered are over 64.	Children under 6 require 1 box of antiviral medicine.	An estimated 30% of pregnant women will exhibit symptoms of flu.	56% of the over 64 age group had a flu vaccination at the start of the winter.	An estimated 55% of under 6s will exhibit symptoms of flu.
Flu medicine can be ordered in sets of 10 boxes.	People with no symptoms are not tested for flu.	An estimated 85% of the "low risk" group that have symptoms of flu will choose not to be tested.	An estimated 1% of people registered will be pregnant women.	At risk groups are tested for flu as soon as they exhibit any symptoms.
An estimated 45% of unvaccinated over 64s will exhibit symptoms of flu.	People who are aged from 6 to 64 and aren't pregnant are considered to be "low risk."	There are 1913 people registered with the practice.	People in the "low risk" group can choose to be tested and receive antiviral medicine if they wish.	The estimated probability of a person with the symptoms actually having flu is 0.7.
8% of people registered are under 6.	Adults and children aged 6 and over require 2 boxes of antiviral medicine.	People who have received the flu vaccine will not display any symptoms and will have virtually no chance of contracting this strain of flu.	Pregnant women, over 64's and under 6's are considered to be the "at risk" groups.	An estimated 30% of the "low risk" age group will exhibit symptoms of flu.

Using the cards:

- There are 1913 people registered with the practice
- An estimated 1% of people registered will be pregnant women
- 8% of people registered are under 6
- 17% of people registered are over 64
- Pregnant women, over 64's and under 6's are considered to be the "at risk" groups

This allows the total numbers in each of the groups to be calculated

Over 64s: $0.17 \times 1913 = 325$ (nearest whole number)

Pregnant women: $0.01 \times 1913 = 19$ (nearest whole number)

Under 6s: $0.08 \times 1913 = 153$ (nearest whole number)

Low risk group: $1913 - 325 - 19 - 153 = 1416$

Using the cards:

- 56% of the over 64 age group had a flu vaccination at the start of the winter
- An estimated 45% of unvaccinated over 64s will exhibit symptoms of flu
- An estimated 30% of pregnant women will exhibit symptoms of flu
- An estimated 55% of under 6s will exhibit symptoms of flu
- An estimated 30% of the "low risk" age group will exhibit symptoms of flu

This allows calculation of the number of each group who will exhibit symptoms

Over 64s: $0.56 \times 64 = 182$ so $325 - 182 = 143$ unvaccinated. $0.45 \times 143 = 64$ symptoms

Pregnant women: $0.3 \times 19 = 6$ symptoms

Under 6s: $0.55 \times 153 = 84$ symptoms

Low risk: $0.3 \times 1416 = 425$ symptoms

(all rounded to the nearest whole number)

Using the cards:

- People in the "low risk" group can choose to be tested and receive antiviral medicine if they wish
- An estimated 85% of the "low risk" group that have symptoms of flu will choose not to be tested

Low risk that will be tested = $0.15 \times 425 = 64$

Using the cards:

- At risk groups are tested for flu as soon as they exhibit any symptoms
- The estimated probability of a person with the symptoms actually having flu is 0.7

Over 64s: $0.7 \times 64 = 45$ will have flu

Pregnant women: $0.7 \times 6 = 4$ will have flu

Under 6s: $0.7 \times 84 = 59$ will have flu

Low risk: $0.7 \times 64 = 45$ will have flu

Using the cards:

- Adults and children aged 6 and over require 2 boxes of antiviral medicine
- Children under 6 require 1 box of antiviral medicine
- Flu medicine can be ordered in sets of 10 boxes

Adults: $45 + 45 + 4 = 94$ Under 6s: 59

$2 \times 94 + 59 = 247$ boxes needed so order 250