Sample Paper 2014 (Set F): Paper 2
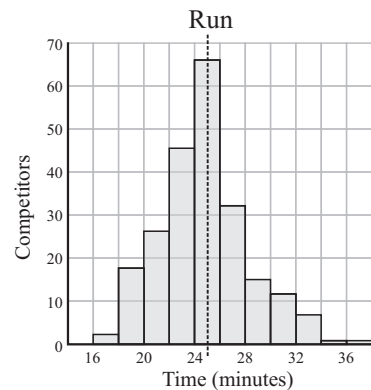
Question 7 (75 marks)

Question 7 (a)

(i) The swim event takes competitors from 10 to 32 minutes to complete.
The cycle event takes competitors from 30 to 60 minutes to complete.
The run event takes competitors from 16 to 38 minutes to complete.
Obviously, the cycle event takes the longest to complete on average.

(ii) In all three histograms, the times are grouped into intervals of **2** minutes.

(iii) The time of the fastest person in the swim was between **10** and **12** minutes.
The fastest person completes the swim event in the shortest time.

(iv) The median time for the run is approximately **25** minutes.
The median line in a histogram is that line which divides the area of the histogram in half. Using your eye this line appears to be along the highest bar in the middle. This is along the class interval 24-26 minutes.

$$\therefore \text{Median} = \frac{26 + 24}{2} = 25$$

(v) The event in which the times are most spread out is the **cycle**.
The swim event takes competitors from 10 to 32 minutes to complete.
The cycle event takes competitors from 30 to 60 minutes to complete.
The run event takes competitors from 16 to 38 minutes to complete.
The cycle event has the largest spread taking 30 minutes between the slowest and fastest.
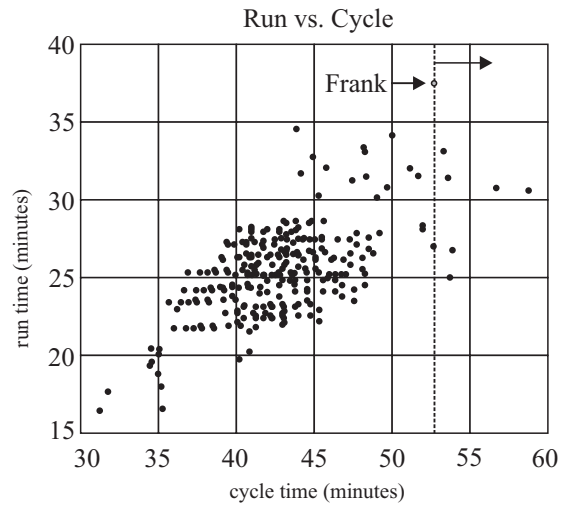
Question 7 (b) (i)

B

Draw a line of best fit through the points. The correlation coefficient r is positive as the slope of the line is positive (it rises from left to right). A value of $r = 1$ means that the points are on the line exactly. A low value of r means the points are spread all over the place. Option B seems like a good choice as the points are clustered moderately well about the best line fit.
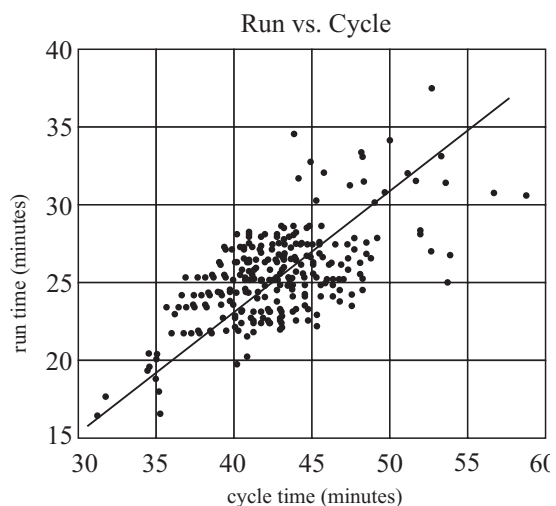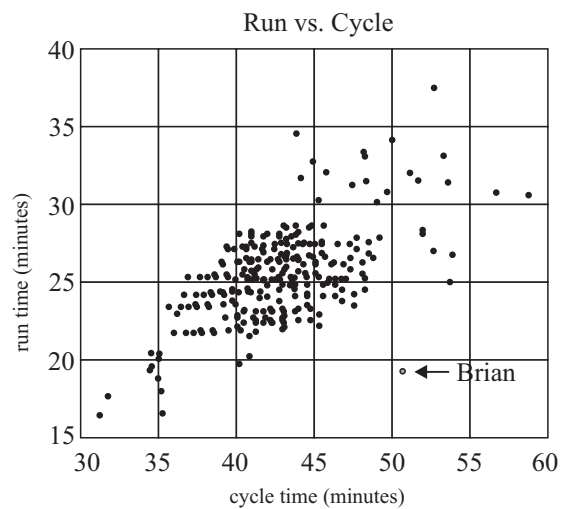
Question 7 (b) (ii)

Answer: **6**

Frank took over 35 minutes to finish the run. However, there are 6 people to the right of him on the graph who had slower cycle times.

Run vs. Cycle

Question 7 (b) (iii)

Brian would be an outlier which is a point that is very different to the other points on the graph. He had a very fast run but a very slow cycle.

Run vs. Cycle

Question 7 (c)

(i) Range of the females = 29·7 – 13·4 = 16·3 minutes
Range of the males = 23·0 – 14·9 = 8·1 minutes
The female distribution is more spread out. It is more skewed.

(ii) Yes, the shapes are more or less the same. The only difference is in the range. Maybe with a larger sample, her theory may be right.