

1 Part a) I predict the assigned speed condition will affect the risk.

The faster the speed, the risk will get higher.

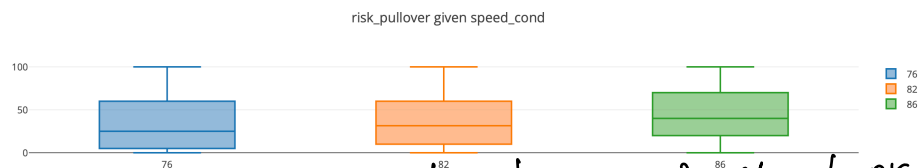
Part b)

risk_pullover	speed_cond	Mean	Median	N
	76	33.552	25.000	404
	82	37.672	31.500	398
	86	43.411	40.000	404

As we can see, they all follow the prediction. The risk-pullover increases as speed gets faster.

Part c) The speed conditions of 76, 82, 86 are all right-skewed. Because Median is smaller than Mean.

Part d)



As we can see, the median line is in the lower range. And the upper whisker is longer than the lower one.

2. Part a) $p = \frac{40}{100} = \left[\frac{2}{5} \right]$

Part b) $p = 1 - \frac{10}{100} = \left[\frac{9}{10} \right]$

Part c) $p = 1 - \frac{6+2+1}{100} = \left[\frac{91}{100} \right]$

Part d) Having Rh Positive and not having type A blood.

$p = \frac{9}{100}$

Part e) $p = \frac{6}{100} = \left[\frac{3}{50} \right]$

Part f) $p = \frac{4}{39+35+8+4} = \frac{4}{86} = \left[\frac{2}{43} \right]$

3. Part a) $P(A \cap B) = P(A) \cdot P(B)$

Part b) $P(A) = 35\%$, $P(B) = 63\%$

$P(A \cap B) = 32\%$

$P(A) \cdot P(B) = 22.0\% \neq P(A \cap B)$

\therefore They are not independent.

4. Part a) 62% of adults aged 18-29 use TikTok
 39% of adults aged 30-49 use TikTok

$$\therefore n_1 = 62\% \cdot 53262451 = 33023719.62$$

$$n_2 = 39\% \cdot 86914205 = 33895540.95$$

$$n_2 > n_1$$

\therefore They are more likely to be (b)

Part b)

$$53262451 + 86914205 + 62962989 + 57822315 \\ = 260961960$$

$$\therefore (i) \quad p = \frac{67\% \times 53262451}{260961960} = 13.67\%$$

$$(ii) \quad p = \frac{75\% \times 86914205}{260961960} = 24.98\%$$

$$(iii) \quad p = \frac{69\% \times 62962989}{260961960} = 16.65\%$$

$$(iv) \quad p = \frac{58\% \times 57822315}{260961960} = 12.85\%$$

Part c) $p = 13.67\% + 24.98\% + 16.65\% + 12.85\%$
 $= 68.15\%$

Part d)
$$p = \frac{13.67\%}{68.15\%} = 20.06\%$$

Part e)
$$p(18-29) = \frac{5326245}{26096196} = 20.41\%$$

$$p(\text{"Face book"}) = 68.15\%$$

$$p(18-29) \cdot p(\text{"Face book"}) = 20.41\% \times 68.15\% \\ = 13.91\%$$

$$13.91\% - 13.67\% = 0.24\% < 1\%$$

\therefore They are independent.