Let X be the number of drivers that admit to using a cell phone while driving.

$n = 750$ Let n be the sample size.

$p = 21\% = 0.21$ Let p be the probability of a driver admitting to using a cell phone while driving.

$q = 1 - p$ Let q be the probability of a driver not admitting to using a cell phone while driving.

$= 1 - 0.21$

$= 0.79$

To use the normal approximation for the binomial distribution, we have to ensure that $np \geq 5$ and $nq \geq 5$.

For np:

np

$= (750)(0.21)$

$= 157.5$

For nq:

nq

$= (750)(0.79)$

$= 592.5$

$\because$ $157.5 > 5$ and $592.5 > 5$, we can use the normal approximation for the binomial distribution.

$\therefore$ X is normally distributed.

$$\bar{x} = np \qquad s = \sqrt{npq}$$

$$= (750)(0.21) \qquad = \sqrt{(750)(0.21)(0.79)}$$

$$= 157.5 \qquad = 11.15$$

$$\therefore X \sim N(157.5, 11.15^2)$$

$$P(100 \leq X \leq 175)$$

$= P(X < 175.5) - P(X < 99.5)$ $\therefore$ We use the end points 175.5 to include 175 and 99.5 to include 100

We calculate the z-scores of 175.5 and 99.5 to find $P(X < 175.5)$ and $P(X < 99.5)$ respectively.

For z-score of 175.5:

$$z = \frac{x - \bar{x}}{s} = \frac{175.5 - 157.5}{11.15} = 1.61$$

For z-score of 99.5:

$$z = \frac{x - \bar{x}}{s} = \frac{99.5 - 157.5}{11.15} = -5.20$$

From the z-score table,

$\because$ A z-score of 1.61 corresponds to a probability of 0.9463

$\therefore P(X \leq 175.5) = 0.9463$

$\because$ A z-score of -5.2 is much smaller than -3.09,

$\therefore P(X \leq 99.5) = 0$

Find $P(100 \leq X \leq 175)$:

$P(100 \leq X \leq 175)$

$= P(X \leq 175.5) - P(X \leq 99.5)$

$= 0.9463 - 0$

$= 0.9463$

$\therefore$ The probability that between 100 and 175 drivers will admit to using their cell phone while driving is 0.9463 or 94.63%.