$np = 400 \times 0.15 = 60 > 10$

$n(1-p) = 400 \times 0.85 = 340 > 10$

$P(X \leq 42)$ binomial

$\mu = np = 60$

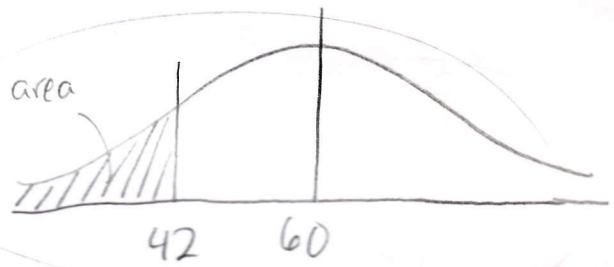
$\sigma = \sqrt{np(1-p)} = \sqrt{400 \times 0.15 \times 0.85} = 7.14$

Normal($\mu = 60$, $\sigma = 7.14$) ~~★~~

$P(X < 42) = 0.0059$

$z = \frac{x-\mu}{\sigma} = \frac{42-60}{7.14}$

$= -2.52$



$P(z < -2.52) = 0.0059$

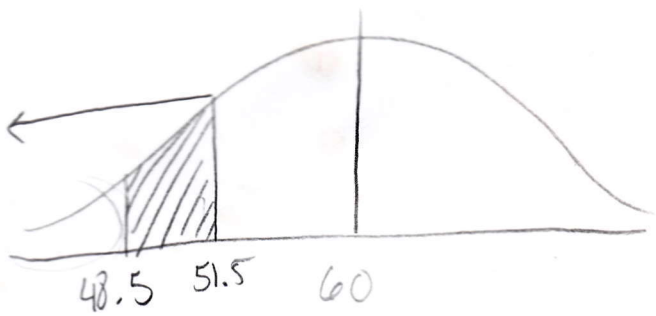
True binomial probability = 0.0054.

$P(X = 49, 50, \text{or } 51) = P(49 \leq X \leq 51)$ binomial

Normal($\mu = 60$, $\sigma = 7.14$)

$P(49 - 0.5 < X < 51 + 0.5)$

$P(48.5 < X < 51.5)$



$z_L = \frac{48.5-60}{7.14} = -1.61$

$z_u = \frac{51.5-60}{7.14} = -1.19$

$P(X < 51.5) - P(X < 48.5)$

$P(z < -1.19) - P(z < -1.61)$

$= 0.1170 - 0.0537$

$= 0.0633$