Ex 12E

Tuesday, 26 February 2019 10:08 AM

15/

$P(\geq 1 \text{ jackpot}) > 0.98$

$1 - P(< 1 \text{ jackpot}) > 0.98$

$1 - \left(\frac{59}{60}\right)^n > 0.98$

$\left(\frac{59}{60}\right)^n < 0.02$

$\log\left(\frac{59}{60}\right)^n < \log 0.02$

$n \log\left(\frac{59}{60}\right) < \log 0.02$

$n > \frac{\log 0.02}{\log\left(\frac{59}{60}\right)}$

$n > 232.7$

$n = 233$

16/ b) $P(\text{match on last day}) = 5 \times \frac{8}{10} \times \frac{7}{9} \times \frac{6}{8} \times \frac{5}{7} \times \frac{4}{6} \times \frac{3}{5} \times \frac{2}{4} \times \frac{1}{2}$

$= \frac{1}{9}$

c) $P(\text{match on 3rd day}) = \frac{1}{9}$

d) $P(\text{match first two mornings}) = 1 \times \frac{1}{9} \times 1 \times \frac{1}{7}$

$= \frac{1}{63}$

e) $P(\text{match every morning}) = 1 \times \frac{1}{9} \times 1 \times \frac{1}{7} \times 1 \times \frac{1}{5} \times 1 \times \frac{1}{3} \times 1 \times 1$

$= \frac{1}{945}$