MA 381, HW #4 Solutions

#5 (#4, pg. 119)

$A = \{(1,2),(2,1),(1,4),(4,1),(1,6),(6,1),(2,3),(3,2),(4,3),(3,4),$
$(5,2),(2,5),(5,4),(4,5),(5,6),(6,5),(6,3),(3,6)\}$

$B = \{(2,1),(2,2),(2,3),(2,4),(2,5),(2,6)\}$

$AB = \{(2,1),(2,3),(2,5)\}$

$P(AB) = 1/12 \quad P(A) = \frac{1}{2} \quad P(B) = 1/6$

$P(AB) = P(A) \cdot P(B)$ so A and B are independent.

#6 (#10, pg. 120)

Cheralin implicitly assumed – wrongly – the various events were mutually exclusive.

$P(\text{"at least one "6" in 6 tosses"}) = 1 - P(\text{none})$
$= 1 - (5/6)^6$
$\doteq \underline{0.5177}$

P("at least one double six in 24 Throws of two dice")

$= 1 - P(\text{none}) = 1 - \left(\frac{35}{36}\right)^{24} \doteq 0.4194$