Sections 3.5 & 3.6

Section 3.5: Conditional Probability

dependent events: outcomes are affected by each other.

conditional probability: the probability of an event happening given that another event has already happened.

ex.1) Computer manufacturer
100 chips in a box
3 will be defective
What is the probability of two chips being defective?

$$\frac{3}{100} \cdot \frac{2}{99} = \frac{6}{9900} = \frac{1}{1650}$$

chip#1 chip#2

Section 3.6: Independents Events

Independent: one event does not affect the other.

example: What is the probability of rolling a 6 on a dice and selecting a King from a deck of cards?

6 on a dice	selecting a King
$\frac{1}{6}$	$\frac{4}{52}$

$$\left(\frac{1}{6}\right)\left(\frac{4}{52}\right) = \frac{4}{312} = \frac{1}{78}$$

Worksheet

1) a) $\left(\frac{4}{52}\right)\left(\frac{3}{51}\right) = \frac{12}{2652} \approx 0.0045$

b) $\left(\frac{13}{52}\right)\left(\frac{13}{51}\right) = 0.064$

c) $\left(\frac{26}{52}\right)\left(\frac{13}{51}\right)\left(\frac{13}{50}\right) \approx 0.033$

2) $(B)(W) = 0.34$

$(0.47)(W) = 0.34$

$W = \frac{0.34}{0.47} = 0.72$

3) $GG + WW + OO$

$\left(\frac{4}{15}\right)\left(\frac{3}{14}\right) + \left(\frac{6}{15}\right)\left(\frac{5}{14}\right) + \left(\frac{5}{15}\right)\left(\frac{4}{14}\right)$

4) 91% own a cellphone

↑ 42% own a smart phone

$0.91 \times 0.42 = 0.38$

Sec. 3.6

1) $\left(\frac{1}{6}\right)\left(\frac{1}{2}\right) = \frac{1}{12}$