66

1.5%

$$\frac{x}{2000} = \frac{0.015}{1}$$

$$x = 30$$

30 items may be defective

7. $\frac{15}{125} = 0.12 = 12\%$

12% of the deer have tags

$\frac{300}{x} = \frac{0.12}{1}$

$\frac{0.12x}{0.12} = \frac{300}{0.12}$

$x = 2500$

the estimated deer population is 2500

Theoretical Probability

vs actual, real world probability

1. P(a 3rd ace) = $\frac{2}{56}$ = 4%

2. a) $P(\text{2 heads}) = P(\text{head and head})$

In probability, and means multiply

$= \frac{1}{2} \times \frac{1}{2}$

$= \frac{1}{4} = 25\%$

b) $P(\text{no heads}) = P(\text{tail and tail})$

$= \frac{1}{2} \times \frac{1}{2}$

$= \frac{1}{4} = 25\%$

c) $P(\text{one head}) = P(HT \text{ or } TH)$

'or' in probability means and

$= \frac{1}{2} \times \frac{1}{2}$ or $\frac{1}{2} \times \frac{1}{2}$

$= \frac{1}{4} + \frac{1}{4}$

$= \frac{2}{4} = 50\%$

3.

$P(\text{red face card}) \quad \frac{6}{52} = \frac{3}{26}$

$P(\text{black male face}) = \frac{4}{52} = \frac{2}{26} = \frac{1}{13}$

$P(\text{event}) = \frac{20}{52} = \frac{10}{26} = \frac{5}{13}$

$P(\text{odd spade}) = \frac{5}{52} =$

$P(\text{Red ace}) = \frac{2}{52} = \frac{1}{26}$

Sum	# of ways
2	(1,1) = 1
3	(1,2)(2,1) = 2
4	(1,3)(3,1)(2,2) = 3
5	(1,4)(4,1)(2,3)(3,2) = 4
6	(1,5)(5,1)(2,4)(4,2)(3,3) = 5
7	(1,6)(6,1)(2,5)(5,2)(3,4)(4,3) = 6
8	(2,6)(6,2)(5,3)(3,5)(4,4) = 5
9	(3,6)(6,3)(4,5)(5,4) = 4