Page 416, #6.1, 6.3, 6.5, 6.6

Solutions

1. Value:	1	2	3	4	5
Prob:	.1	.2	.3	.3	??

a. $P(X = 5) = 1 - (.1+.2+.3+.3) = .10$

b. Pain score is discrete because they are plotable points with no stated values between.

$\mu_x = np$

$\sigma_x = \sqrt{np(1 - p)}$

c. $P(X \leq 2) = .1 + .2 = 0.3$

d. $E_x = \mu_x = np =$

$\mu_x = E(x) = \Sigma x_i p_i$

Mean = (1 x .1) + (2 x .2) + (3 x .3) + (4 x .3) + (5 x .1)

= 3.1

$Var(x) = \sigma_x^2 = (x_1 - \mu_x)^2 p_1 + (x_2 - \mu_x)^2 p_2 + ...$

Variance = $(1-3.1)^2(0.1) + (2-3.1)^2(0.2) + (3-3.1)^2(0.3) + (4-3.1)^2(0.3) + (5-3.1)^2(0.1)$

= 1.29

Standard deviation $\sigma_x = \sqrt{1.29} \approx$ 1.14

2.

Matches:	0	1	2	3	4
Payout:	$0	$0	$1	$3	$120
P_i:	.308	.433	.213	.043.	.003

a. μ_x = $0.70

σ_x = = $6.58

The expected outcome is to win $0.70. The amount that varies from is typically $6.58 less or more.

b. Jerry places $5 bet on 4-spot keno

μ_x = $0.70 x 5 = $3.50

σ_x = = $6.58 x 5 = $32.90

$\mu_x = np$

$\sigma_x = \sqrt{np(1 - p)}$

c. μ_x = 5 x .70 = $3.50

$\sigma_x = \sqrt{(5)(.70)(1 - .70)}$

σ_x = $1.03 *

*not sure I got this correct...

Thoughts?

d. The casino would prefer both as their expected payout is the same. .