Week 3 Math Assignment

Chris Fenton

2.34

(a) $E(x) = 0 \times .5 + 5 \times .25 + 10 \times .231 + 30 \times 0.019$

(Model / Red card; spade; 2-K Club; Ace of Club)

$+ 1.25 + 2.31 + 0.57$

$E(x) = 0$

expected value (μ)

$E(x) = 4.13$

$\sigma^2 = (0 - 4.13)^2 \times 0.5 + (5 - 4.13)^2 \times .25 + (10 - 4.13)^2 \times .231 + (30 - 4.13)^2 \times 0.0$

$17.06 \times 0.5 + 0.76 \times .25 + 34.46 \times .231 + 669.26 \times 0.01$

$\sigma^2 = 29.4 = 8.53 + 0.19 + 7.96 + 12.72$

SD

$\sigma = 5.42$

(b) Maximum I would spend is 4.12, because that point my expected winnings would be 4.13, thus I could expect a net gain

2.40

(a) $E(\text{Reaper Passenger}) = 0 \times .54 + 25 \times .34 + 60 \times .12$

(No Bass; One Bass; Two Bass)

$E(RPP) = 0 + 8.50 + 7.2$

$E(RPP) = 15.7$

$\sigma^2 = (0 - 15.7)^2 \times .54 + (25 - 15.7)^2 \times .34 + (60 - 15.7)^2 \times .1$

$246.49 \times .54 + 86.49 \times .34 + 1962.49 \times .1$

$\sigma^2 = 398 = 133.10$ ~~247.03~~ $29.41 + 235.49$

$\sigma = 19.94$

2.40 (cont'd)

(b) $120 \times 15.7 = \$1,884$ in expected revenue

Standard Deviation

$\sigma^2 = (1^2 \cdot .398)120$

$\sigma^2 = 47.760$

$\sigma_{SD} = 218.54$

Assumptions are each passenger's checked Back is independent of all others. Not justified, as groups of passengers or families are probably not independent of each other.

2.42

(a) net money = -72

SD

$\sigma^2 = (-1)^2 \times 4^2 + 1^2 \times 5^{-2} = 41.$

$\sigma = \sqrt{41} = 6.40$

(b) expect to make \$11

$\sigma = \$6.40$

2.46

(a) This distribution is continuous.

(b) .622

(c) ~~.622, assuming Income is~~

$.622 \times .41 = .25502$, Assuming Income is independent of gender

(d) This fact indicates income is not independent of gender.