Ward\_Abigail\_HW5

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7/17/2021

##question 1

Let be independent, identically distributed random variables with mean and variance

##Question 2

If and , then $ E [X\_i^2]= 12+ 6^2$ so $ E [X\_i^2]= 48$

f2<-function(x){x^2\*dgamma(x,shape=3,scale=2)}  
integrate(f2,0,Inf)$value

## [1] 48

## Question 3

## Question 4

## Question 5

## Question 6

## Question 7

## Question 8

Part 1

for a

for b and c

for d

for e and f

The random variables are independent because the probability of both events is the same as the probability of a single event occurring.

Part 2

for a and d

for e

for b and c and f

The random variables are not independent because the probability of both events is not the same as the probability of a single event occurring.

##Question 9 weighted average with minimizes the variance of