HW 5

Question 1 Consider the following probability distribution function: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Consider the following probability distribution function:

f(x)=x(x+1)/12 for x={-2,-1,0,1,2,3} or 0 otherwise.

.y={1/6, 1/12, 0, 1/6, 1/2, 1}; Ey(-2,3)=23/12.

1. Find the probability: 

-1(-1+0)/12=1/12

1. Find the probability: 

Add the y of all x from -1 to 1, to get 1/12+0+1/6=1/4.

Divide by #x to get 1/12.

1. Find the probability: 

1/2+1=3/2, \*(1/12)=1/8, \*(1/2)=1/16.

Question 2 Consider the following probability density function: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

f(x)=sinx for x(0,pi/2), 0 otherwise.

1. Find the probability: 

P(x>pi/4)=(4/pi)S|pi/4,pi/2|(sinx)dx=(4/pi)[cos(pi/4)-cos(pi/2)]~.9003

1. Find the probability: 

(2/pi)S|pi/6,pi/3|(sinx)dx=(2/pi)(cos(pi/6)-cos(pi/3))~.23302

1. Find the probability: 

(2/pi)(sin1)~.535697...since 1 is not an area.

Question 3 Assume that the weights of giraffes are approximately normally distributed with mean μ = 2200 pounds and standard deviation σ = 200 pounds.

1. Find the probability that a randomly selected giraffe weighs less than 2300 pounds.

Range not given

Sample size not given

Confidence not given

1. Find the probability that a randomly selected giraffe weighs between 2160 and 2410 pounds.

No sample size given

Confidence not given

1. Find the probability that the average of 20 randomly selected giraffes weighs more than 2240 pounds.

Sample size to small t>((2240-2200)/(200/rad20))

Using t sampling rad(1600/(40000/20))

~between (15 and 20)% Rad(16/20)=(4/5)^(1/2)~.8944

1. Find the probability that the average of 80 randomly selected giraffes weighs between 2170 than 2190 pounds.

Using z score z=((2190-2170)/(200/rad80)

Rad(400/(40000/80))=(4/5)^(1/2)~.8944

Z(.89)~81.33%.