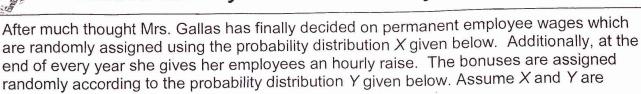
Name:	•	Hour:	Date:





1. Find the mean, variance and standard deviation of the probability distribution of X, the hourly wages.

X	9	12	15		
Probability	0.30	0.45	0.25		

independent.

Mean: \\.85 \quad \text{Variance: 4.93} \quad \text{Standard Deviation: } \alpha \cdot \alpha \c

2. Find the mean, variance and standard deviation of the probability distribution of Y, the annual hourly raise.

Υ	\$1	\$3
Probability	0.70	0.30

Variance: .839 Standard Deviation: .91

3. Let N = the new hourly wage for the upcoming year (X + Y). What are all the possible new hourly wages for the new year?

(0, 12, 13, 15, 16, 18) a. What is the probability of an employee being assigned a \$9 wage AND a \$1 raise? Show your work.

 $P(9 \cap 1) = P(9) \times P(1) = .3 \times .7 = .21$

b. Complete the table below for the probability distribution of N = X + Y and find the mean and standard deviation.

N	10	12	13	15	16	18
Probability	.21	.09	.315	.135	.175	.075

Mean: 13.45 Variance: 5.76 Standard Deviation: 2.46

4. If N = X + Y, complete the following in terms of X and Y:

$$\sigma_N = \sqrt{\sigma_X^2 + \sigma_Y^2}$$

77#I	Important ideas: Adding and Random Varia $M_{X+y} = M_X + M_y$ $T_{X+y} = \sqrt{\sigma_X^2 + \sigma_y^2}$	subtract ables X a Mx-y=1	My: My: My: My: My: My: My: My:	21	T#2 Fina Jund Jevi	: Normal Prob. Dist. New mean Standard ation!	
	Check Your Understanding A large auto dealership keeps track of sales and lease agreements made during each hour of the day. Let $X =$ the number of cars sold and $Y =$ the number of cars leased during the first hour of business on a randomly selected Friday. Based on previous records, the probability distributions of X and Y are as follows:						
		Cars sold x _i	0	1	2	3	
		Probability p _i	0.3	0.4	0.2	0.1	47150
	Me	an: $\mu_{\rm X} = 1.1$	Standard	devia	tion: $\sigma_{\scriptscriptstyle X}$	$a = 0.943 \times 500 = 0$	7 /1.30
		Cars leased y_i	0	1	2		
		Probability p _i	0.4	0.5	0.1	- · · ·	
	Mean: $\mu_Y = 0.7$ Standard deviation: $\sigma_Y = 0.64 \times 300 = 192$						
	Define $T = X + Y$. Assume	that X and Y a	re indepe	endent	t.		
	1. Find and interpret μ_T . $M_T = 1.8$ Over many many fridays, the dealer expects to sell, on average, about 1.8 cars. 2. Calculate and interpret σ_T . $T = \sqrt{943^2 + .64^2} = \sqrt{1.2988} = 1.14$						
	3. The dealership's m for each car leased B. MB = 500 (1) = 550	. Find the mear	n and sta	ndard	deviati	ch car sold and a \$300 on of the manager's tot (500× .943) ² +(3) 259 174 . 25	300x.64)2
	- 330 -	• v.€				M	
	=760				5	\$509.09	

Lesson 6.2 Day 2- Combining Probability Distributions

_ Hour: ____ Date: ____

Name: