1) Determine whether the random variable described is discrete or continuous. 1) _____
The number of minutes you must wait in line at the grocery store

A) discrete B) continuous

Is time a continuous variable or a discrete variable?

2) Determine whether the random variable described is discrete or continuous. 2) _____
The number of coins in a jar

A) continuous B) discrete

Is the number of coins a continuous variable or a discrete variable?

3) The sum of the probabilities of all the events in the sample space of a probability distribution must equal 1. 3) _____

A) True B) False

4) The following distribution is *not* a probability distribution because _____. 4) _____

X	-2	-1	0	1	2
***P*(*X*)**	0.10	0.24	0.41	0.15	0.28

A) the probability values are not increasing
B) the values of the variable are negative
C) the probability values are not discrete
D) the probability values do not add to 1

sum(P(x))= 0.10 + 0.24 + 0.41 + 0.15 + 0.28 = 1.18

5) Fill in the missing value so that the following table represents a probability distribution. 5) _____

x	5	6	7	8
P(*x*)	0.57	0.13	?	0.17

sum(P(x)) = 0.57 + 0.13 + X + 0.17
1 = 0.87 + X
1 - 0.87 = X
0.13 = X

x | Px
1 | 0.125
2 | 0.294
3 | 0.405
4 | 0.098
5 | 0.078

6) The probability that a hockey team scores a total of 1 goal in a game is 0.125; 2 goals, 0.294; 3 goals, 0.405; 4 goals, 0.098; and 5 goals, 0.078. Construct the probability distribution for this discrete random variable and draw the graph. 6) _____

7) The following table presents the probability distribution of the number of vacations *X* taken last year for a randomly chosen family. Find *P*(at least one). 7) _____

x	0	1	2	3	4
P(*x*)	0.09	0.68	0.15	0.06	0.02

P(at least one = P(x=1) + P(x=2) + P(x=3) + P(x=4)
= 0.68 + 0.15 + 0.06 + 0.02
= 0.91

same as:

P(at least one) = 1 - P(none) = 1 - P(x=0)
= 1 - 0.09
= 0.91

8) The following table presents the probability distribution of the number of dogs X owned for a randomly chosen family. Find the probability that a family has i) at least 3 dogs ii) no dogs iii) at most one dog. 8) _____

x	0	1	2	3	4
$P(x)$	0.05	0.73	0.13	0.05	0.04

A) i) 0.09 ii) 0.05 iii) 0.78

B) i) 0.09 ii) 0.50 iii) 0.73

i. P(at least 3) = P(3) + P(4) = 0.05 + 0.04 = 0.09 OR
P(at least 3) = 1 - P(at most 2) = 1- (0.05 + 0.73 + 0.13) = 1 - 0.91 = 0.09

ii. P(no dogs) = P(0) = 0.05

iii. P(at most one) = P(0) + P(1) = 0.05 + 0.73 = 0.78