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3.2 Items are categorized according to an attribute with types X, Y, Z and according to state of origin.

	X	Y	Z
NY	20	5	5
CA	10	10	5

(a) Compare the number of items of each type made in each state with a side-by-side bar chart. Two ways to do this.

(b) Compare these numbers using a stacked bar chart which is also a bar chart for the state variable.

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3.7'. Given the quantitative bivariate data set for variables x and y : $(-2,2), (-1,2), (-1,1), (1,-1), (1,-2), (2,-2)$.

(a) Make a scatterplot.

(b) Are x and y positively or negatively correlated or neither?

(c)(2) Calculate the following: Checksums

$\bar{x} = \underline{\hspace{1cm}}$ $\bar{y} = \underline{\hspace{1cm}}$ $s_{xy} = \underline{\hspace{1cm}}$
 0, 0, 10

$s_x = \underline{\hspace{1cm}}$ $s_y = \underline{\hspace{1cm}}$ $r = \underline{\hspace{1cm}}$
 11, 10, 14

(d)(2) Find the equation $y = a + bx$ of the least-squares line. checks=0,9

(e) If $x=3$, estimate what y is. check=8

$y = \underline{\hspace{1cm}}$

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4.2. A sample space S consists of five simple events with probabilities: $P(E_1)=P(E_2)=.15, P(E_3)=.4, P(E_4)=2P(E_5)$.

(a) Find the probability of the simple event E_5 .

$P(E_5) = \underline{\hspace{1cm}}$

(b) Find the probability of the event $A = \{E_1, E_3, E_4\}$.

$P(A) = \underline{\hspace{1cm}}$

(c) List the simple events in $A \cup B$ if $B = \{E_2, E_3\}$

$A \cup B =$

(d) List the simple events in $A \cap B$.

$A \cap B =$

4.4. A basketball player hits 70% of her free throws. The simple events are HH, HM, MH, MM where HM means a hit on the first throw and a miss on the second.

$P(HH) = .49, P(MH) = .21, P(MM) = .09$.

(a) Find the probability of a hit on the first throw and a miss on the second. check=3

$P(HM) = \underline{\hspace{1cm}}$

(b) Find the probability that the player will hit on at least one of the two throws. check=10

4.6. Two dice are tossed.

(a)(2) Construct a tree diagram for this experiment.

(b) What is the probability that the sum of the numbers which come up is 7? check 8