Prom Practice

The Devil's Advocate surveyed all senior girls who will be attending prom this weekend.

They found out that of the girls surveyed, 61% will be getting their hair done at a salon, 42% will be getting their nails done at a salon and 18% will be getting both their hair and nails done at a salon. (BOYS, WHAT ARE YOU DOING TO MAKE YOURSELF LOOK NICE FOR PROM?) If a girl attending prom was selected at random find the probability that she:

a) Draw a Venn Diagram:

Hair   Nails

.43 (.18) .24

none: $1 - (.43 + .18 + .24)$
$1 - .85$
$.15$

b) Fill out the two – way table:

	Hair Done	No Hair Done	Totals
Nails Done	.18	.24	.42
No Nails Done	.43	.15	.58
Totals	.61	.39	1.00

If a girl attending prom is selected at random what is the probability that she:

c) Is getting her nails done, but not her hair done?   c) _____.24_____

d) Is getting neither her hair nor her nails done at the salon?   d) _____.15_____

e) Is getting her nails or hair done at the salon?   e) _____.85_____

$1 - .15 = .85$ OR $.24 + .43 + .18$ OR $.61 + .42 - .18$

f) Is getting her hair done, but not her nails done at the salon?   f) _____.43_____

g) getting her nails done or her hair done, but not both?   g) _____.67_____

$.24 + .43$

h) Is getting her nails done given that she had her hair done?   h) __.30__

and

$$P(\text{nails}|\text{hair}) = \frac{P(\text{nails} \cap \text{hair})}{P(\text{hair})} = \frac{.18}{.61}$$

i) Is getting her hair done given that she had her nails done?   i) __.43__

$$P(\text{hair}|\text{nails}) = \frac{P(\text{hair} \cap \text{nails})}{P(\text{nails})} = \frac{.18}{.42}$$

j) _____