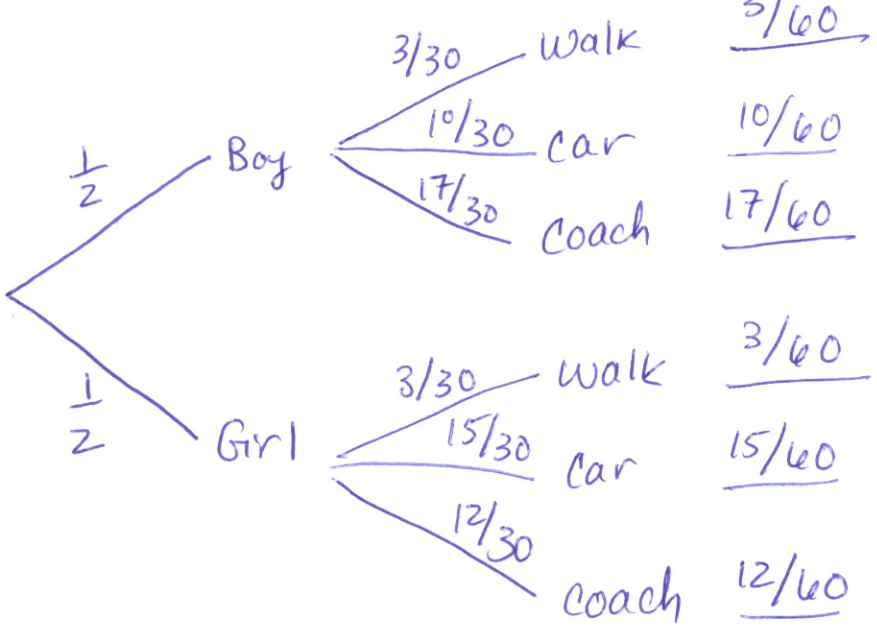
Problem Set #4

3H

(3) $\frac{1}{10}$ Boys Walk
$\frac{1}{10}$ Girls Walk
$\frac{1}{3}$ Boys "get a lift" (car)
$\frac{1}{2}$ Girls "get a lift" (car)
Rest "come by coach" (Bus)

Boys	Girls
$\frac{3}{30}$ = walk	$\frac{3}{30}$ = walk
$\frac{10}{30}$ = car	$\frac{15}{30}$ = car
$\frac{17}{30}$ = coach	$\frac{12}{30}$ = coach



a) Girls by coach = $\boxed{\frac{12}{60}}$

b) By coach total = $17/60 + 12/60 = \boxed{29/60}$

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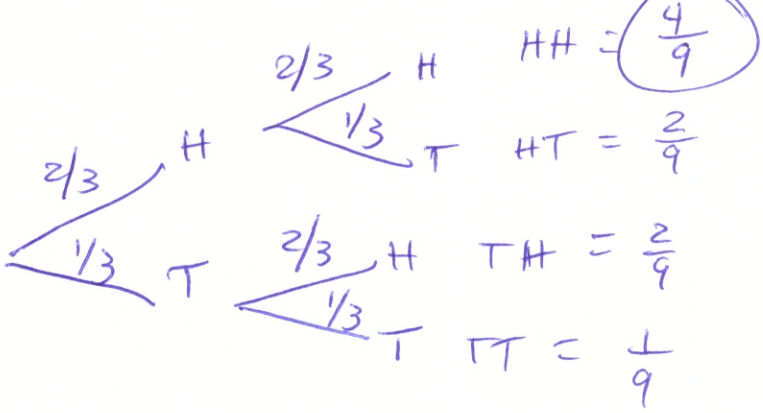
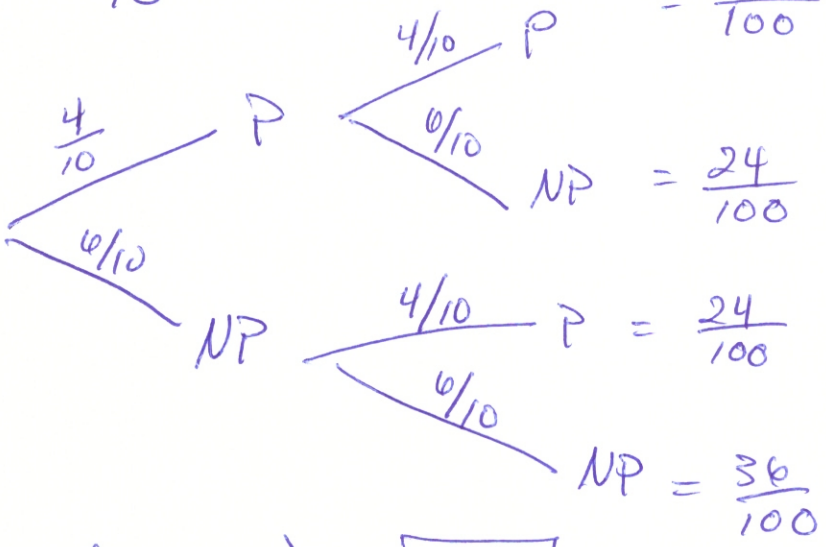
(4) Biased Coin
$P(H) = \frac{2}{3}$



(5) 10 sided die 1 (2) (3) 4 (5) 6 (7) 8 9 10

$P(\text{Prime}) = \frac{4}{10}$



a) P(exactly 1 prime) = $\boxed{\frac{48}{100}}$

b) P(at least 1 prime) = $\frac{16}{100} + \frac{48}{100} = \boxed{\frac{64}{100}}$

or // $1 - \frac{36}{100} = \frac{64}{100}$

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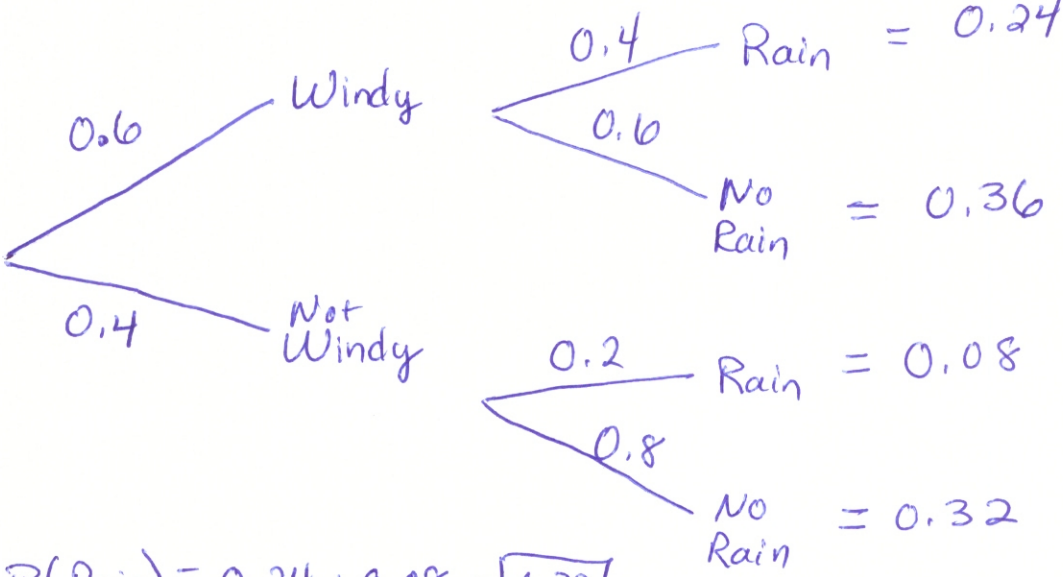
(6) a)

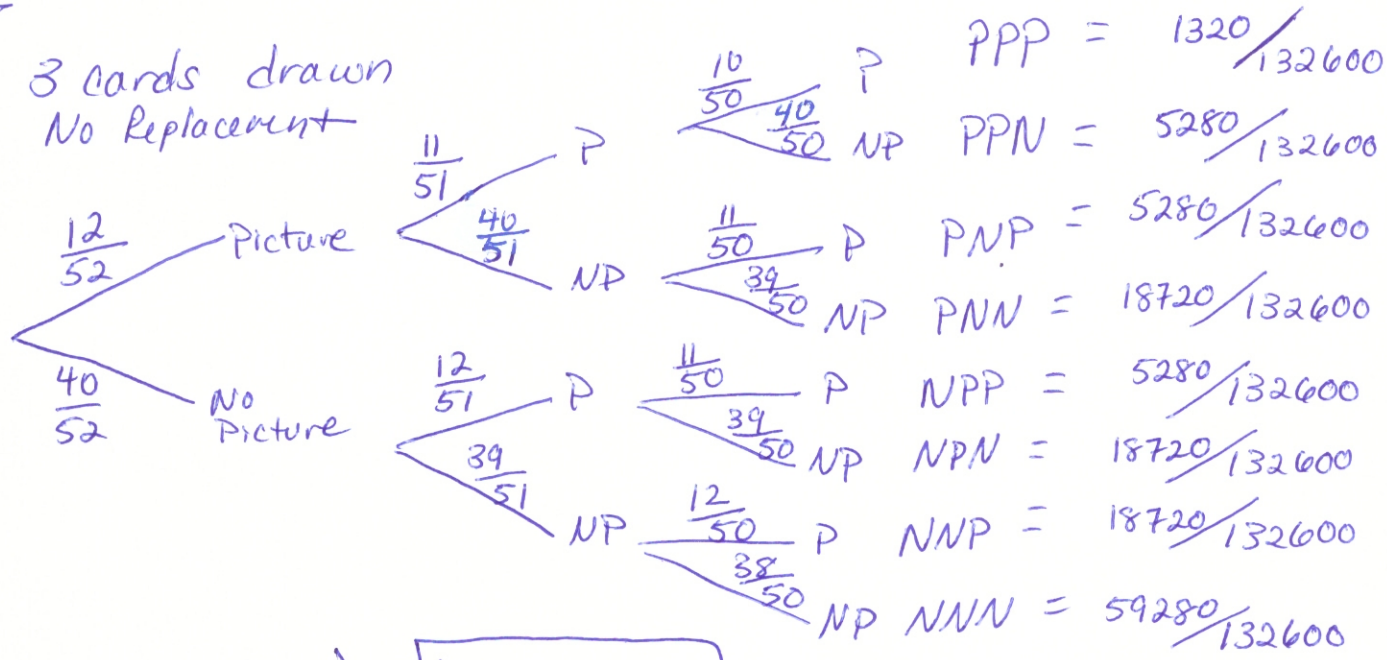


b) P(Rain) = 0.24 + 0.08 = $\boxed{0.32}$

c) P(No Rain) · P(No Rain)
0.68 · 0.68 = $\boxed{0.4624}$

31

① 3 cards drawn
No Replacement



PPP = 1320/132600
PPN = 5280/132600
PNP = 5280/132600
PNN = 18720/132600
NPP = 5280/132600
NPN = 18720/132600
NNP = 18720/132600
NNN = 59280/132600

a) $P(\text{3 picture cards}) = \boxed{\frac{1320}{132600}}$

b) $P(\text{2 Picture cards}) = \underbrace{\frac{5280}{132600}}_{(PPN)} + \underbrace{\frac{5280}{132600}}_{(PNP)} + \underbrace{\frac{5280}{132600}}_{(NPP)} = \boxed{\frac{15840}{132600}}$

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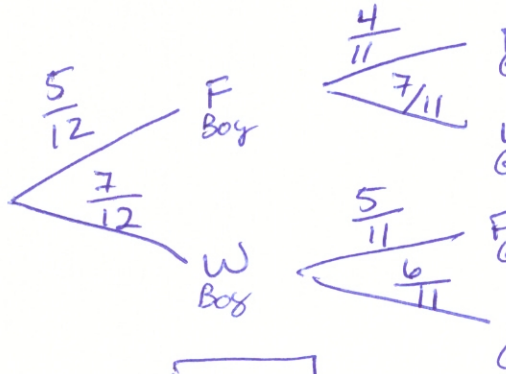
② Pencil Case 5 faulty pens
7 working



FF = 20/132
FW = 35/132
WF = 35/132
WW = 42/132

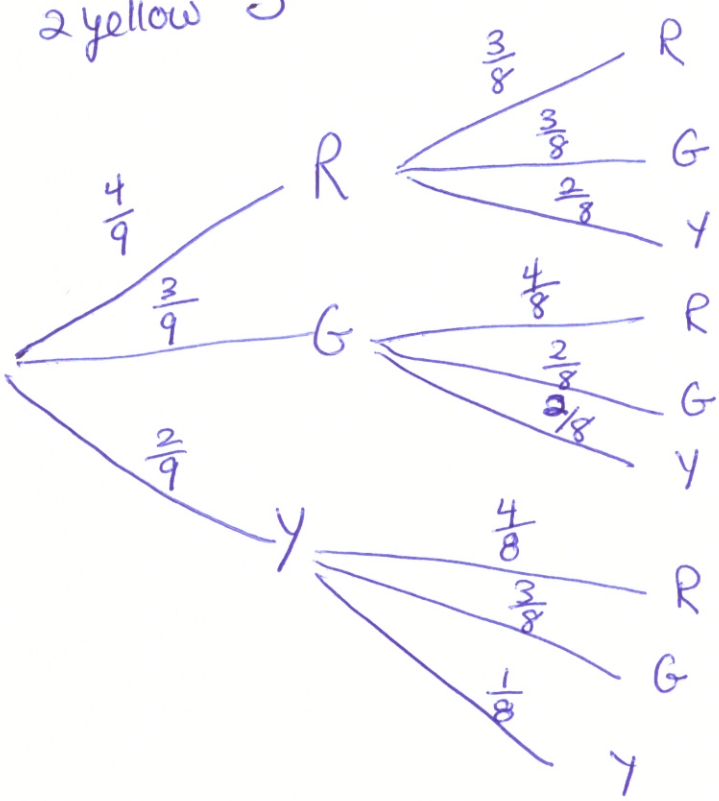
a) $P(FF) = \boxed{\frac{20}{132}}$

b) $P(\text{at least 1 F}) = \frac{20}{132} + \frac{35}{132} + \frac{35}{132} = \boxed{\frac{90}{132}}$

c) $P(\text{Girl} \mid \text{1 Faulty}) = \frac{P(\text{Girl Faulty})}{P(\text{1 Faulty})} = \frac{\frac{35}{132}}{\frac{70}{132}} = \boxed{\frac{1}{2}}$

(3) * This is the one from the Notes *

4 Red
3 Green
2 yellow
} 2 drawn w/o replacement



RR = 12/72
RG = 12/72
RY = 8/72
GR = 12/72
GG = 6/72
GY = 6/72
YR = 8/72
YG = 6/72
YY = 2/72

a) $P(GG) = \boxed{6/72}$

b) $P(\text{same color}) = P(RR) + P(GG) + P(YY)$

$$\frac{12}{72} + \frac{6}{72} + \frac{2}{72} = \boxed{\frac{20}{72}}$$

c) $P(\text{No Red}) = P(GG) + P(GY) + P(YG) + P(YY)$

$$\frac{6}{72} + \frac{6}{72} + \frac{6}{72} + \frac{2}{72} = \boxed{\frac{20}{72}}$$

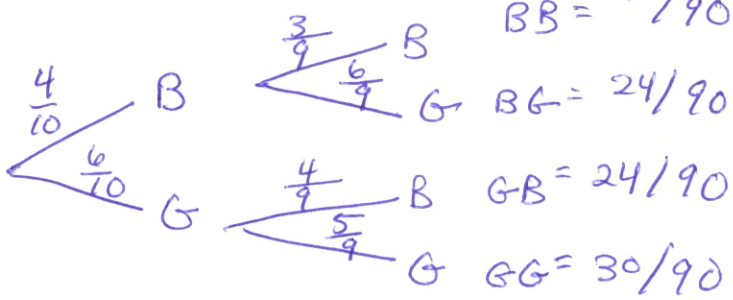
d) $P(\text{at least 1 yellow}) = P(RY) + P(GY) + P(YR) + P(YG) + P(YY)$

$$= \frac{8}{72} + \frac{6}{72} + \frac{8}{72} + \frac{6}{72} + \frac{2}{72}$$

$$= \boxed{\frac{30}{72}}$$

(5) 6 Girls
4 Boys

a) $P(\text{Boy}) = \boxed{\frac{4}{10}}$



b) 2 chosen (w/o replacement b/c you can't choose the same person twice)

$$P(\text{1 of each}) = P(BG) + P(GB)$$
$$= \frac{24}{90} + \frac{24}{90} = \boxed{\frac{48}{90}}$$