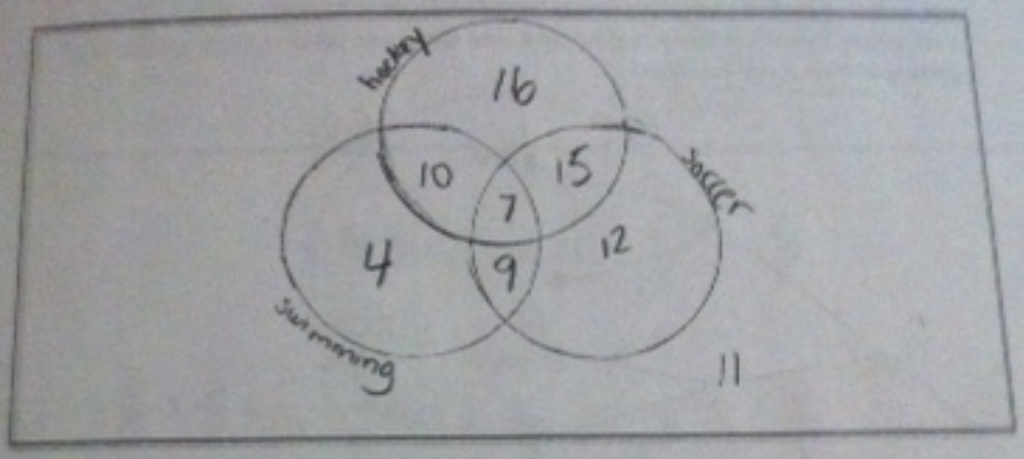
Practice Quiz – Probability

Name: _____

Question 1:

A survey was conducted at school to see who would sign up for which sports if they were offered.



a) How many people are in the grade?

$16 + 10 + 7 + 15 + 4 + 9 + 12 + 11 = 84$

b) What is the probability someone wants to play hockey and soccer?

$H \cap S \quad 7 + 15 = \frac{22}{84}$

c) What is the probability of ~~liking~~ all 3 sports?

$\frac{7}{84}$

d) Probability that someone likes swimming but not hockey?

$4 + 9 = \frac{13}{84}$

e) Probability that someone does not like hockey?

$4 + 9 + 12 + 11 = \frac{36}{84}$

f) Probability that someone will join at least 2 sports?

$10 + 7 + 15 + 9 = \frac{41}{84}$

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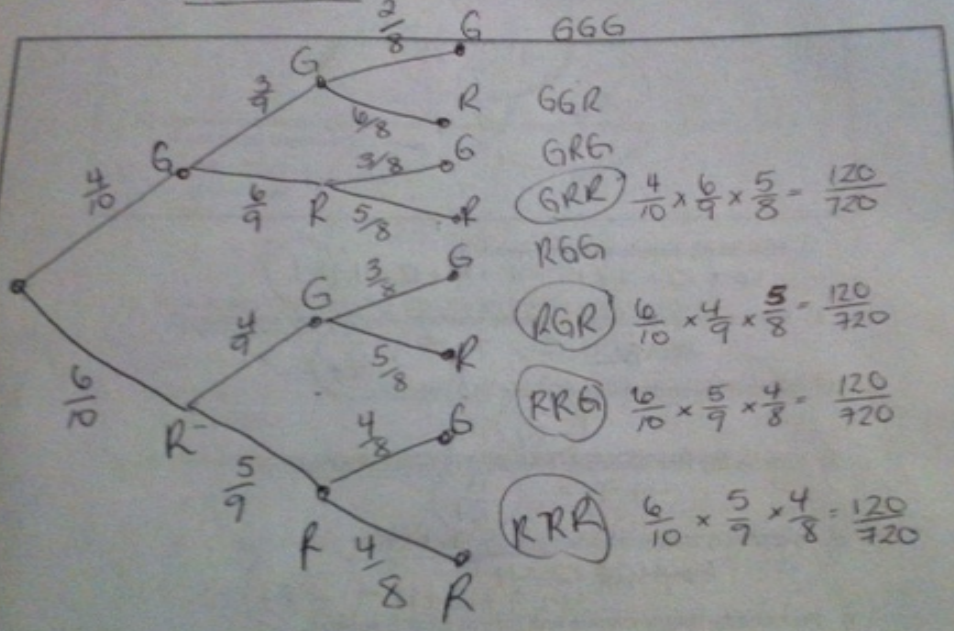
Question 2:

A bag contains 10 marbles, of which 4 are green and the rest are red. Three marbles are drawn out of the bag one at a time without putting them back in the bag after each draw. Represent this situation by a **tree diagram**. What is the probability of getting at least 2 red marbles?



Probability of getting at least 2 red marbles:

$$\frac{120+120+120+120}{720}=\frac{480}{720}$$

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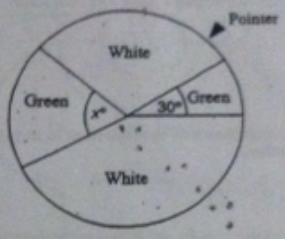
Question 3:

The measure of the central angle in one of the green sectors is x degrees. The measure of the central angle in the other green sector is 30 degrees.



Someone spins the wheel of fortune. When the wheel stops spinning, the probability that the pointer will land on one of the green sectors is equal to $\frac{6}{24}$. What is the value of x?

$$\frac{x+30}{360} = \frac{6}{24}$$

$$x+30 = \frac{360 \times 6}{24}$$

$$x+30 = 90$$
$$-30 \quad -30$$
$$x = 60°$$

X= 60

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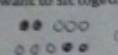
Bonus:

There's 3 boys and 2 girls who want to sit in 5 chairs.

a) How many ways can they sit if there's no restriction?

$5! = 120$

b) How many ways can they sit if the girls want to sit together and the boys want to sit together?

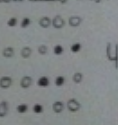


2ways

$3! \times 2! \times 2 =$

$6 \times 2 \times 2 = 24$

c) How many ways can they sit if the girls want to sit together?

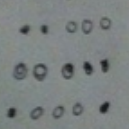


4ways

$3! \times 2! \times 4 =$

$6 \times 2 \times 4 = 48$

d) How many ways can they sit if the boys want to sit together?



3 ways

$3! \times 2! \times 3 =$

$6 \times 2 \times 3 = 36$