Name: _____

MDM4U Unit 4 Quiz #1

1. How many outcomes are possible if you roll a dice three times and then flip a coin?

Dice outcomes = 6 (for each)

Coin outcomes = 2

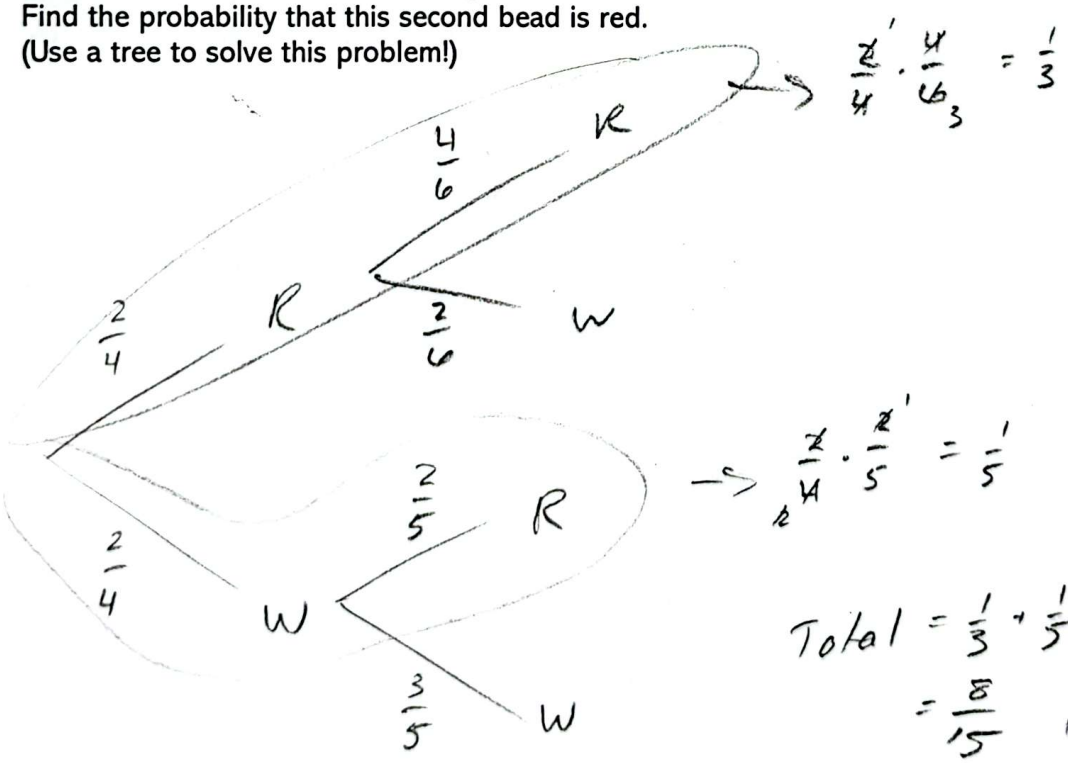
Total outcomes = $6 \cdot 6 \cdot 6 \cdot 2$

$= 432$

2. A bag contains 2 white and two red beads.

One bead is drawn at random.
- If the bead is white it is put back in the bag along with 1 extra white bead.
- If the bead is red it is put back in the bag along with 2 extra red beads.

Another bead is taken from the bag.
Find the probability that this second bead is red.
(Use a tree to solve this problem!)



$\frac{2}{4} \cdot \frac{4}{6} = \frac{1}{3}$

$\frac{2}{4} \cdot \frac{2}{5} = \frac{1}{5}$

Total $= \frac{1}{3} + \frac{1}{5}$

$= \frac{8}{15}$ ($\sim 53\%$)

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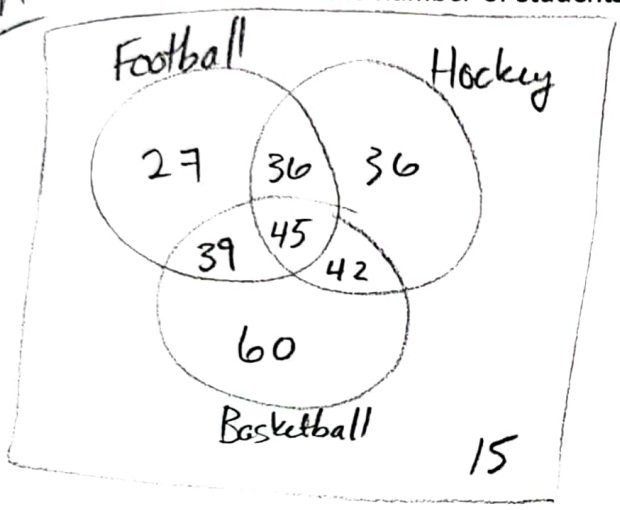
3. In a survey of 300 students, it was found that
   49% liked watching football,
   53% liked watching hockey and
   62% liked watching basketball.

   It was also,
   27% liked watching both football and hockey,
   29% liked watching both basketball and hockey and
   28% liked watching both football and basketball.

   15% of students enjoy watching all three sports.

   A. Draw a Venn diagram (filled) to represent this scenario. [2]
   B. How many students didn't like any of the three games? [1]
   C. Find the number of students who like watching only one game. [1]
   D. Find the number of students who like watching at least two games. [1]

A



B 15

C $27+36+66$
$=123$

D $39+36+42+45$
$=162$

4. There are three grade 9, five grade 10, six grade 11, and nine grade 12 students on a student council. A committee is being formed with one student from each grade, plus an additional student from either grade 11 or 12. In how many ways could this committee be formed? [3]

$= \binom{3}{1}\binom{5}{1}\binom{6}{1}\binom{9}{2} + \binom{3}{1}\binom{5}{1}\binom{6}{2}\binom{9}{1}$

$= 3 \cdot 5 \cdot 6 \cdot 36 + 3 \cdot 5 \cdot 15 \cdot 9$

$= 5265$