

Name: Solution

Period: _____

Practice Quiz 8ABC

Integrated Math 2

Answer the questions thoroughly including any necessary math or explanations.

$$8 + 14 + 11 = 33$$

1) Given a standard 6 sided number cube (a die), answer the following questions:

a) What is the sample space?

$$\{1, 2, 3, 4, 5, 6\}$$

b) What is the probability of rolling a multiple of 2?

$$\text{Multiple of 2} \rightarrow \{2, 4, 6\}$$

$$\frac{3}{6} = \boxed{\frac{1}{2}}$$

2) A goblet contains 8 red marbles, 14 green marbles, and 11 blue marbles. If we choose a marble, then another marble without putting the first one back in the goblet, what is the probability that the first marble will be blue and the second will be red?

$$P(\text{Blue and Red})$$

$$= P(\text{Blue}) \cdot P(\text{Red})$$

$$= \frac{11}{33} \cdot \frac{8}{32} = \frac{88}{1056} = \boxed{\frac{1}{12}}$$

3) Use the two way frequency table to find the probabilities:

a) P(wearing yellow and not having blue eyes)

$$\frac{30}{62} = \boxed{\frac{15}{31}}$$

b) P(have blue eyes)

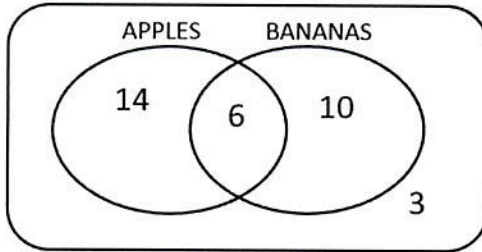
$$\frac{12}{62} = \boxed{\frac{6}{31}}$$

c) P(not wearing yellow given they have blue eyes)

$$\frac{2}{12} = \boxed{\frac{1}{6}}$$

	Wearing Yellow	Not Wearing Yellow	Totals
Blue Eyes	10	2	12
Not Blue Eyes	30	20	50
Totals	40	22	62

4) The National Honor Society was asked to vote for which snack they would like at their next meeting. Use the Venn diagram to fill in the table with labels and numbers.



Add
↓

	Apples YES	Apples NO	TOTAL
Bananas YES	6	10	16
Bananas NO	14	3	17
TOTAL	20	13	33

Add
→

5) Given that Event A and B are independent:

$P(A)=0.80$ and $P(B)=0.14$, then $P(A|B)=$

0.80

$$P(A|B) = \frac{P(A \text{ and } B)}{P(B)} = \frac{P(A) \cdot P(B)}{P(B)} = P(A)$$

∴ $P(A|B) = P(A) = 0.80$

$P(A)=0.29$ and $P(B)=0.42$, then $P(A \text{ and } B)=$

$$P(A) \cdot P(B) = 0.29 \cdot 0.42 = \underline{0.1218}$$

$P(A)=0.58$ and $P(B)=0.35$, then $P(B|A)=$

0.35

$$P(B|A) = \frac{P(A \text{ and } B)}{P(A)} = \frac{P(A) \cdot P(B)}{P(A)} = P(B)$$

∴ $P(B|A) = P(B)$

6) The probability that Sammy plays basketball is 0.46. The probability that he plays basketball and lifts weights is 0.28. Find the probability that Sammy lifts weights given he plays basketball.

Event A: lifts weights

Event B: plays ball

→ conditional prob. *

$$P(A|B) = \frac{P(A \text{ and } B)}{P(B)} = \frac{0.28}{0.46} = \frac{28}{46} = \underline{\frac{14}{23}}$$

FORMULAS

$$P(A \text{ or } B) = P(A) + P(B)$$

$$P(A \text{ and } B) = P(A) \cdot P(B)$$

$$* P(A|B) = \frac{P(A \text{ and } B)}{P(B)}$$