Answers to Independent Vs Dependent (ID: 1)

1) Dependent
2) Dependent
3) Independent
4) Independent
5) Independent
6) Independent
7) $\frac{1}{4} = 0.25$
8) $\frac{14}{55} \approx 0.255$
9) $\frac{4}{9} \approx 0.444$
10) $\frac{1}{36} \approx 0.028$
11) $\frac{21}{55} \approx 0.382$
12) $\frac{64}{169} \approx 0.379$

$P(LL) \cdot P(O)$

$\frac{4}{11} \cdot \frac{7}{10} = \frac{28}{110}$

Analytic Geometry Unit 7: Probability Notes

Conditional Probability

Conditional Probability:

- Contains a condition that may limit the sample space for an event.
- You can write a conditional probability using the notation:

P(B | A)=P(B given A)

- The formula for conditional probability is:

1. The table shows the results of a class survey. Find P(own a pet | female).

Do you own a pet?	Yes	No	
Female	8	6	14
Male	5	7	12
	13	13	26

$\frac{8}{14} = \frac{4}{7}$

2. The table shows the results of a class survey. Find P(wash the dishes | male)

Did you wash the dishes last night?	Yes	No	
Female	7	6	13
Male	7	8	15
	14	14	28

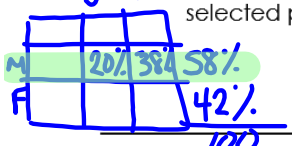
$\frac{7}{15}$

3. Using the data in the table, find the probability that a sample of not recycled waste was plastic. P(plastic | non-recycled)

Material	Recycled	Not Recycled	
Paper	34.9	48.9	83.8
Metal	6.5	10.1	16.6
Glass	2.9	9.1	12
Plastic	1.1	20.4	21.5
Other	15.3	67.8	83.1
	60.7	156.3	

$\frac{20.4}{156.3} \approx .13$

4. Researchers asked people who exercise regularly whether they jog or walk. Fifty-eight percent of the respondents were male. Twenty percent of all respondents were males who said they jog. Find the probability that a randomly selected person jogs given they are male.



$\frac{20\%}{58\%} = \frac{.2}{.58} \approx .34$ 34%

5. A bag contains blue and yellow marbles. Two marbles are drawn without replacement. The probability of selecting a blue marble and then a yellow marble is .37 and the probability of selecting a yellow marble on the second draw, if the first marble drawn was blue is .67. What is the probability of selecting a blue marble?

$P(y/B) = .67$

$P(B \cap y) = .37$

$P(B) = ?$

P_1 P_2

Yellow Blue

Yellow Yellow

Blue Blue

Blue Yellow .37

$P(A \cap B) = P(A) \cdot P(B/A)$

$.37 = P(B) \cdot (.67)$

$\frac{.37}{.67} = P(B)$

$.55 = P(B)$

$P(B/A) = \frac{P(A \cap B)}{P(A)}$

Practice B

1.

	Ages 10–20	Ages 21–45	Ages 46–65	65 and Older	Total
Yes	0.13	0.02	0.08	0.24	0.47
No	0.25	0.10	0.15	0.03	0.53
Total	0.38	0.12	0.23	0.27	1

2 a.

		Owns an MP3 player		
		Yes	No	Total
Owns a Smart Phone	Yes	0.28	0.12	0.40
	No	0.34	0.26	0.60
	Total	0.62	0.38	1

b. 0.45

c. 0.70