

TASK KEY

Secondary II Unit 14 – Probabilities: Task 14.6

Categorical Data

Name: _____

Hour: _____

Students at Ridgeline High School were asked if they were going to attend the football game on Friday night. The answers they gave are found below. Please fill in all of the missing parts.

Symbols	2-way Table																
<p>Key: Male = M Female = F Attend = Y Not Attend = N</p> <p>Sample size = 1500</p> <p>$P(Y) = 432/1500$</p> <p>$P(M) = 851/1500$</p> <p>$P(F Y) = 194/432$</p> <p>a) $P(Y F) = 194/649 = .299$ or 29.9%</p> <p>b) $P(M \cap Y) = 238/1500 = 15.9\%$</p> <p>c) $P(M \cup Y) = \frac{851}{1500} + \frac{432}{1500} - \frac{238}{1500} = \frac{1045}{1500} = .696$ or 70%</p>	<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Attend</th> <th>Not Attend</th> <th>Total</th> </tr> </thead> <tbody> <tr> <th>Male</th> <td style="text-align: center;">238</td> <td style="text-align: center;">613</td> <td style="text-align: center;">851</td> </tr> <tr> <th>Female</th> <td style="text-align: center;">194</td> <td style="text-align: center;">455</td> <td style="text-align: center;">649</td> </tr> <tr> <th>Total</th> <td style="text-align: center;">432</td> <td style="text-align: center;">1,068</td> <td style="text-align: center;">1500</td> </tr> </tbody> </table>		Attend	Not Attend	Total	Male	238	613	851	Female	194	455	649	Total	432	1,068	1500
	Attend	Not Attend	Total														
Male	238	613	851														
Female	194	455	649														
Total	432	1,068	1500														
Venn Diagram	Tree Diagram																
<p style="text-align: center;">Male Attend</p> <p style="text-align: center;">Male Not Attending: 613 Males: 238 Female Attending: 194</p> <p style="text-align: center;">455 - Females Not Attending</p>	<p style="text-align: center;">male (.57) Attend (.28) Not Attend (.72)</p> <p style="text-align: center;">female (.43) Attend (.30) Not Attend (.70)</p> <p style="text-align: right; margin-right: 20px;">.16 .41 .13 .30</p>																

HW Key

13 total

Section 14.5

Categorical Data

Name: Key

Hour: _____

Part I

What's your favorite color?

When asked this question, the most popular color named was blue.

Key:	2-way Table																
Male = M Female = F Blue = B Not Blue = N	<table border="1"> <thead> <tr> <th></th> <th>Blue</th> <th>Not Blue</th> <th>Total</th> </tr> </thead> <tbody> <tr> <th>Male</th> <td>36</td> <td>28</td> <td>64</td> </tr> <tr> <th>Female</th> <td>48</td> <td>88</td> <td>136</td> </tr> <tr> <th>Total</th> <td>84</td> <td>116</td> <td>200</td> </tr> </tbody> </table>		Blue	Not Blue	Total	Male	36	28	64	Female	48	88	136	Total	84	116	200
	Blue	Not Blue	Total														
Male	36	28	64														
Female	48	88	136														
Total	84	116	200														
Sample size = 200 $P(B) = 84/200$ $P(M) = 64/200$ $P(F B) = 48/84$ $P(B F) = \frac{48}{136}$ $P(M \cap B) = \frac{36}{200}$ $P(M \cup B) = \frac{64}{200} + \frac{84}{200} - \frac{36}{200} = \frac{112}{200}$																	
Venn Diagram	Tree Diagram																

1/2 pt.

1/2 pt

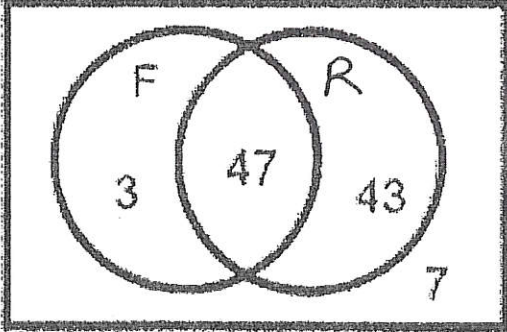
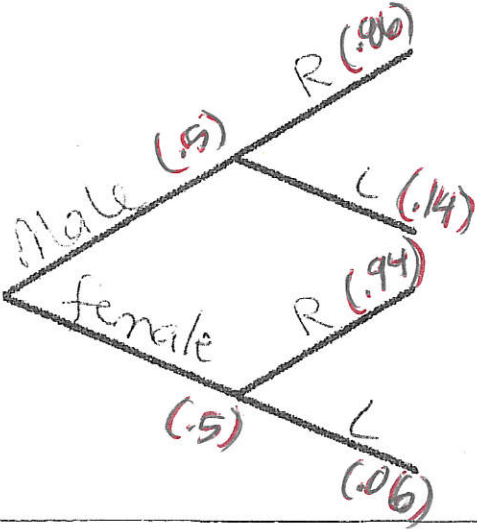
1/2 pt

2 pts / page

2 pts

Part II

Are you a lefty or a righty?

Symbols		2-way Table		
Key: Male = M Female = F Lefty = L Righty = R				
Sample size = 100				
$P(L) = \frac{10}{100}$				
$P(M) = \frac{50}{100}$				
$P(F) = \frac{50}{100}$				
$P(L F) = \frac{3}{50}$				
$P(L M) = \frac{7}{50}$				
In this sample are there equal proportions of males and females who are left handed? Explain.				
No				
Venn Diagram		Tree Diagram		
				

Part III

Do you eat breakfast or not?

Symbols	2-way Table																
<p>Key: Male = M Female = F Eats Breakfast = E Doesn't Eat Breakfast = D</p> <p>Sample size =</p> <p>$P(E) = \frac{307}{600} = 51.2\%$</p> <p>$P(E M) = \frac{216}{372} = \frac{18}{31} \text{ or } 58.1\%$</p> <p>$P(E \cap M) = \frac{216}{600} = \frac{9}{25} \text{ or } 36\%$</p> <p>$P(E F) = \frac{91}{228} = 39.9\%$</p> <p>$P(E \cap F) = \frac{91}{600} = 15.2\%$</p>	<p style="text-align: right;">Round to the nearest whole #:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>Eats</th> <th>Doesn't</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Male</td> <td>372(.58) = 216</td> <td>156</td> <td>600(.62) = 372</td> </tr> <tr> <td>Female</td> <td>228(.4) = 91</td> <td>137</td> <td>228</td> </tr> <tr> <td>Total</td> <td>307</td> <td>293</td> <td>600</td> </tr> </tbody> </table>		Eats	Doesn't	Total	Male	372(.58) = 216	156	600(.62) = 372	Female	228(.4) = 91	137	228	Total	307	293	600
	Eats	Doesn't	Total														
Male	372(.58) = 216	156	600(.62) = 372														
Female	228(.4) = 91	137	228														
Total	307	293	600														
Venn Diagram	Tree Diagram																
<p style="text-align: center;">female and don't eat 137</p>																	