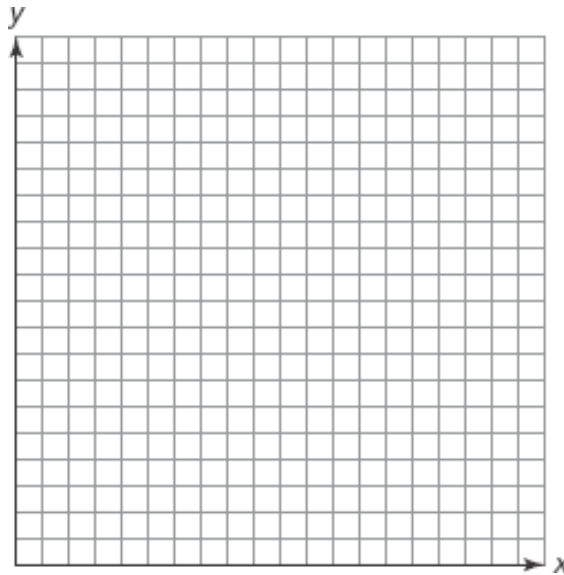


**Unit 10 Review - Math 1**

1. Mrs. Quinton is trying to decide what type of pizza to have at her dog’s birthday party. She is inviting a lot of guest and decides to ask them all what type of pizza they like. The data she collected is organized by type of pizza toppings and type of pizza crust. The relative frequency distribution shows the results of her survey.

		Type of Pizza				
		Cheese	Veggie	Pepperoni	Everything	Total
Type of Crust	Thick	$\frac{38}{152} = 0.25$	$\frac{11}{152} \approx 0.072$	$\frac{20}{152} \approx 0.132$	$\frac{3}{152} \approx 0.020$	$\frac{72}{152} \approx 0.474$
	Thin	$\frac{15}{152} \approx 0.099$	$\frac{9}{152} \approx 0.059$	$\frac{18}{152} \approx 0.118$	$\frac{12}{152} \approx 0.079$	$\frac{54}{152} \approx 0.355$
	Stuffed	$\frac{9}{152} \approx 0.059$	$\frac{4}{152} \approx 0.026$	$\frac{3}{152} \approx 0.020$	$\frac{10}{152} \approx 0.066$	$\frac{26}{152} \approx 0.171$
	Total	$\frac{62}{152} \approx 0.408$	$\frac{24}{152} \approx 0.158$	$\frac{41}{152} \approx 0.270$	$\frac{25}{152} \approx 0.164$	$\frac{152}{152} = 1$

- a. Construct a **stacked** bar graph of the relative frequency distribution. Let the  $x$ -axis represent the type of type of pizza toppings.



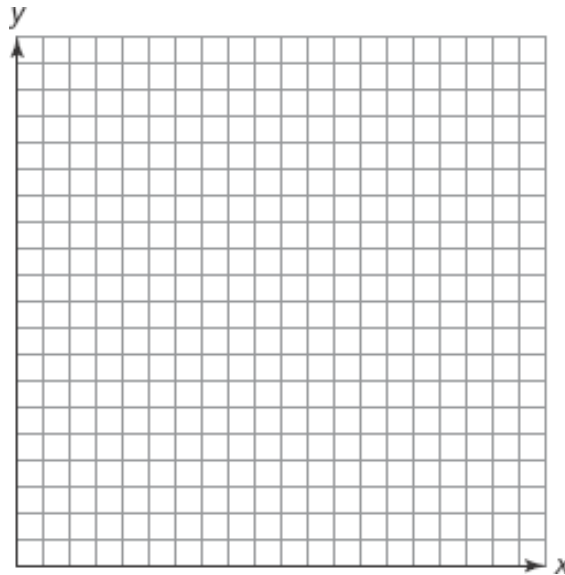
- b. What type of pizza should Mrs. Quinton have at her dog’s birthday part? Explain your reasoning.

2. Mrs. Quinton is trying to decide what type of pizza to have at her dog’s birthday party. She is inviting a lot of guest and decides to ask them all what type of pizza they like. The data she collected is organized by type of pizza toppings and type of pizza crust. The relative frequency distribution shows the results of her survey.

**Type of Pizza**

		Cheese	Veggie	Pepperoni	Everything	Total
Type of Crust	Thick	$\frac{38}{152} \approx 0.25$	$\frac{11}{152} \approx 0.072$	$\frac{20}{152} \approx 0.132$	$\frac{3}{152} \approx 0.020$	$\frac{72}{152} \approx 0.474$
	Thin	$\frac{15}{152} \approx 0.099$	$\frac{9}{152} \approx 0.059$	$\frac{18}{152} \approx 0.118$	$\frac{12}{152} \approx 0.079$	$\frac{54}{152} \approx 0.355$
	Stuffed	$\frac{9}{152} \approx 0.059$	$\frac{4}{152} \approx 0.026$	$\frac{3}{152} \approx 0.020$	$\frac{10}{152} \approx 0.066$	$\frac{26}{152} \approx 0.171$
	Total	$\frac{62}{152} \approx 0.408$	$\frac{24}{152} \approx 0.158$	$\frac{41}{152} \approx 0.270$	$\frac{25}{152} \approx 0.164$	$\frac{152}{152} = 1$

- a. Construct a **stacked** bar graph of the relative frequency distribution. Let the  $x$ -axis represent the type of pizza toppings.



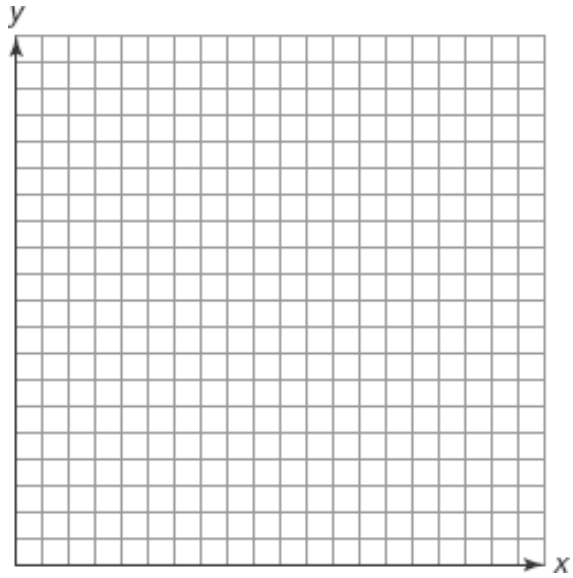
- b. What type of pizza should Mrs. Quinton have at her dog's birthday part? Explain your reasoning.
3. A high school band director wants to choose songs for his students to play at the spring concert. He narrows his choice down to three types of music. In order to choose songs students at the school like, he takes a poll of some students in different grades. The table shows the results.

		Grade Level of Students			
		9th	10th	11th	12th
Type of Music	Jazz	///	///	////	### ///
	Contemporary	###	////	###	//
	Classical	///	//	///	////

- a. Create a frequency marginal distribution of the data.

		Grade Level of Students				
		9th	10th	11th	12th	Total
Type of Music	Jazz					
	Contemporary					
	Classical					
	Total					

- b. Construct a bar graph of the frequencies. Let the  $x$ -axis represent the type of music.



c. What conclusions can you draw by examining the graph? (List two)

d. Construct a relative frequency distribution and relative frequency marginal distribution.

		Grade Level of Students				
Type of Music						

e. Construct a relative frequency conditional distribution for the four grades.

		Grade Level of Students			
Type of Music					

**f.** Given a student's grade level, what is their favorite type of music? List your conclusions for each of the grade levels.

**g.** Look back at each of the tables and the graph you created to represent the music survey. Based on the tables and graph, what type of music do you think the band director should choose for the concert? Explain your choice.

**h.** Which table or graph do you think the band director should look at to justify his choice? Explain your reasoning.

**Unit 10 Review - Math 1**  
**Answer Section**

1. ANS:  
 Cheese is the overall favorite type of pizza.

PTS: 1 REF: 10.2 NAT: S.ID.5 TOP: Standardized Test  
 KEY: relative frequency distribution | relative frequency marginal distribution

2. ANS:  
 Cheese is the overall favorite type of pizza.

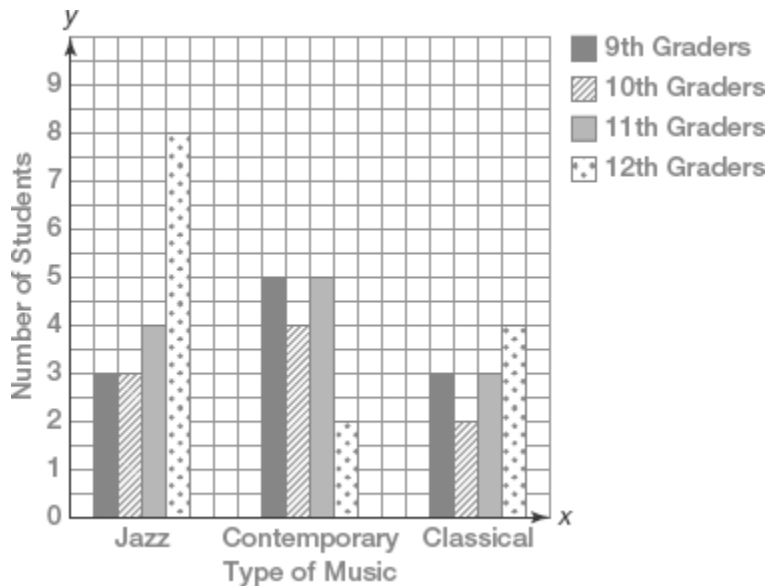
PTS: 1 REF: 10.2 NAT: S.ID.5 TOP: Standardized Test  
 KEY: relative frequency distribution | relative frequency marginal distribution

3. ANS:  
 a.

**Grade Level of Students**

		Grade Level of Students				
		9th	10th	11th	12th	Total
Type of Music	Jazz	3	3	4	8	18
	Contemporary	5	4	5	2	16
	Classical	3	2	3	4	12
	Total	11	9	12	14	46

- b.



c. Answers will vary.

Jazz is the clear favorite among 12th graders. Students in grades 9 through 11 like contemporary music, but it is the least favorite of 12th graders. Students of all grades like classical music, but it is not a favorite.

d.

		Grade Level of Students				
		9th	10th	11th	12th	Total
Type of Music	Jazz	$\frac{3}{46} \approx 0.065$	$\frac{3}{46} \approx 0.065$	$\frac{4}{46} \approx 0.087$	$\frac{8}{46} \approx 0.174$	$\frac{18}{46} \approx 0.391$
	Contemporary	$\frac{5}{46} \approx 0.109$	$\frac{4}{46} \approx 0.087$	$\frac{5}{46} \approx 0.109$	$\frac{2}{46} \approx 0.043$	$\frac{16}{46} \approx 0.348$
	Classical	$\frac{3}{46} \approx 0.065$	$\frac{2}{46} \approx 0.043$	$\frac{3}{46} \approx 0.065$	$\frac{4}{46} \approx 0.087$	$\frac{12}{46} \approx 0.261$
	Total	$\frac{11}{46} \approx 0.239$	$\frac{9}{46} \approx 0.196$	$\frac{12}{46} \approx 0.261$	$\frac{14}{46} \approx 0.304$	$\frac{46}{46} = 1$

e.

		Grade Level of Students				
		9th	10th	11th	12th	Total
Type of Music	Jazz	$\frac{3}{11} \approx 27.3\%$	$\frac{3}{9} \approx 33.3\%$	$\frac{4}{12} \approx 33.3\%$	$\frac{8}{14} \approx 57.1\%$	$\frac{18}{46} \approx 39.1\%$
	Contemporary	$\frac{5}{11} \approx 45.5\%$	$\frac{4}{9} \approx 44.4\%$	$\frac{5}{12} \approx 41.7\%$	$\frac{2}{14} \approx 14.3\%$	$\frac{16}{46} \approx 34.8\%$
	Classical	$\frac{3}{11} \approx 27.3\%$	$\frac{2}{9} \approx 22.2\%$	$\frac{3}{12} = 25\%$	$\frac{4}{14} \approx 28.6\%$	$\frac{12}{46} \approx 26.1\%$
	Total	$\frac{11}{11} = 100\%$	$\frac{9}{9} = 100\%$	$\frac{12}{12} = 100\%$	$\frac{14}{14} = 100\%$	$\frac{46}{46} = 100\%$

f. Answers will vary.

Contemporary music is most popular in every grade except 12th. Over half of the students surveyed in the 12th grade preferred jazz. Jazz and contemporary are also the overall favorites. Classical is least favorite overall.

g. Answers will vary.

The band director should include jazz music because the frequency marginal distribution shows that it is the favorite of 12th graders. He should also include contemporary music because the relative frequency conditional distribution shows it as the overall second favorite.

PTS: 1

REF: 10.1 | 10.2 | 10.3 | 10.4

NAT: S.ID.5 | S.ID.5 | S.ID.5 | S.ID.5

TOP: Post Test

KEY: categorical data | two-way frequency table | frequency distribution | joint frequency | marginal frequency distribution | relative frequency distribution | relative frequency marginal distribution | relative frequency conditional distribution