

**Math 2 Unit 14 Worksheet 3**  
**Conditional Probability and Independent Events**

Name: \_\_\_\_\_  
 Date: \_\_\_\_\_ Per: \_\_\_\_\_

[1-9] Use the two-way table below to find each probability. Your answer should be in one of the following forms: a reduced fraction, a decimal rounded to the nearest hundredth, or a whole percent.

	Blue	Red	White	Total
Car	40	12	78	130
Truck	20	28	22	70
Total	60	40	100	200

1.  $P(\text{car and blue}) =$  \_\_\_\_\_      2.  $P(\text{white or truck}) =$  \_\_\_\_\_      3.  $P(\text{not red}) =$  \_\_\_\_\_
4.  $P(\text{car and not blue}) =$  \_\_\_\_\_      5.  $P(\text{red and white}) =$  \_\_\_\_\_      6.  $P(\text{car or truck}) =$  \_\_\_\_\_
7.  $P(\text{red}|\text{truck}) =$  \_\_\_\_\_      8.  $P(\text{car}|\text{blue or red}) =$  \_\_\_\_\_      9.  $P(\text{not car}|\text{not white}) =$  \_\_\_\_\_

[10-16] Complete the two-way table below and then find each probability. Your answer should be in one of the following forms: a reduced fraction, a decimal rounded to the nearest hundredth, or a whole percent.

	Hamburger	Pizza	Sandwich	Total
Freshman	150		75	425
Sophomore		185	10	275
Junior	40			
Total		450		900

10.  $P(\text{hamburger}) =$  \_\_\_\_\_      11.  $P(\text{junior}) =$  \_\_\_\_\_
12.  $P(\text{hamburger or sophomore}) =$  \_\_\_\_\_      13.  $P(\text{pizza or freshman}) =$  \_\_\_\_\_
14.  $P(\text{junior}|\text{sandwich}) =$  \_\_\_\_\_      15.  $P(\text{not freshman}|\text{not pizza}) =$  \_\_\_\_\_

16. In a few sentences explain how you determine if two events given in numbers [1 – 9] or [10 – 15] are mutually exclusive.

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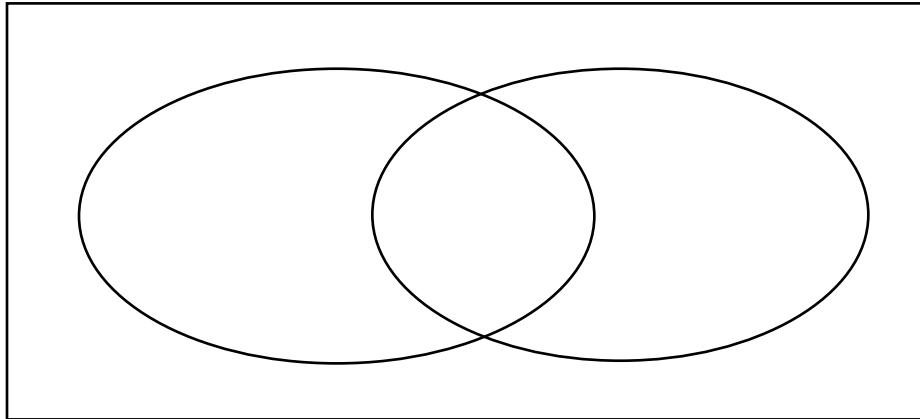
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[17-23] 80 people from Fresno visited New York last year. 55 of them visited Buffalo, 40 visited Rochester, and 30 visited both Buffalo and Rochester.

17. Draw a Venn Diagram to display the information. Make sure to label your diagram.



18. How many people visited Buffalo only? 18. \_\_\_\_\_

19. How many people visited neither Buffalo nor Rochester? 19. \_\_\_\_\_

20. What is the probability that one of the 80 people picked at random would have visited either Buffalo or Rochester? 20. \_\_\_\_\_

21. What is the probability that one of the 80 people picked at random would have visited both Buffalo and Rochester? 21. \_\_\_\_\_

22. Are the events “visited Buffalo” and “visited Rochester” mutually exclusive? Justify your answer.

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23. Are the events “visited Buffalo” and “visited Rochester” **independent**? Justify your answer mathematically using the test for independence.

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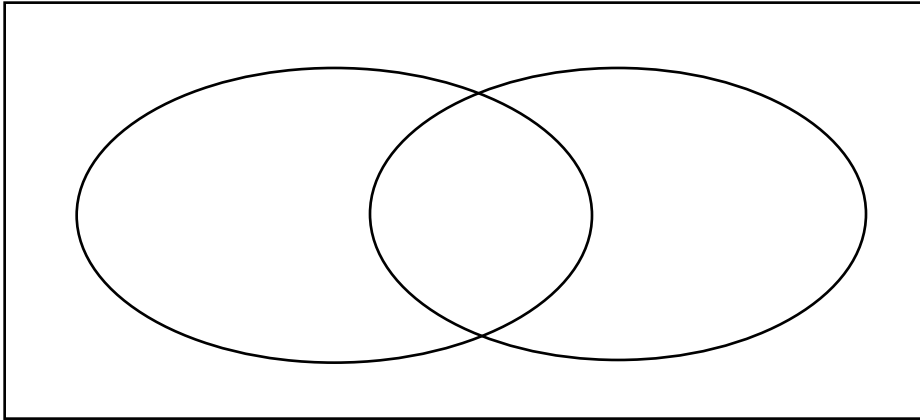
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[24-30]

There are 100 players who participate in the tournament match. Among the 100 players, 60 player will play in baseball match, 40 players will play in a football match and 24 players will play in both the baseball and football match.

24. Draw a Venn Diagram to display the information. Make sure to label your diagram.



25. How many people play football only? 25. \_\_\_\_\_

26. How many people play neither baseball nor football? 26. \_\_\_\_\_

27. What is the probability that one of the 100 players picked at random would have played either baseball or football? 27. \_\_\_\_\_

28. What is the probability that one of the 100 players picked at random would have played both baseball and football? 28. \_\_\_\_\_

29. Are the events “playing baseball” and “playing football” mutually exclusive? Justify your answer.

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30. Are the events “playing baseball” and “playing football” **independent**? Justify your answer mathematically using the test for independence.

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