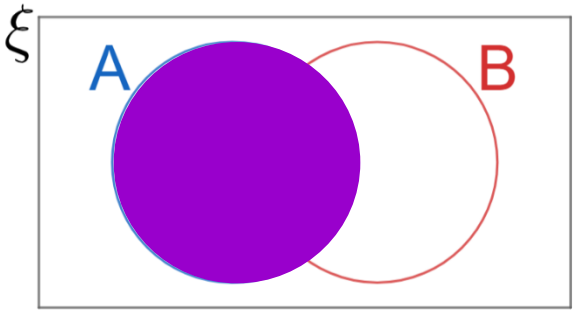
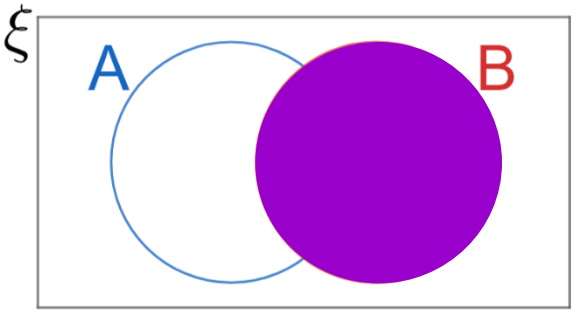
Statistical Reasoning
Chapter 7 – Week 2 – Quiz Review

Name: _____

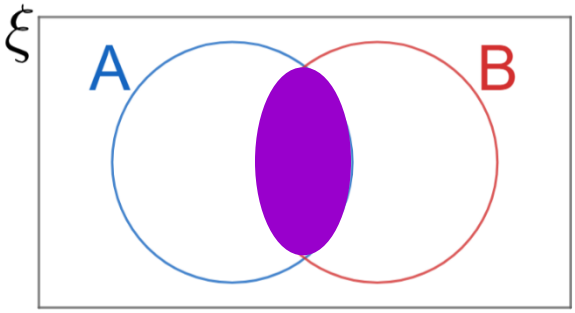
1) Shade A.



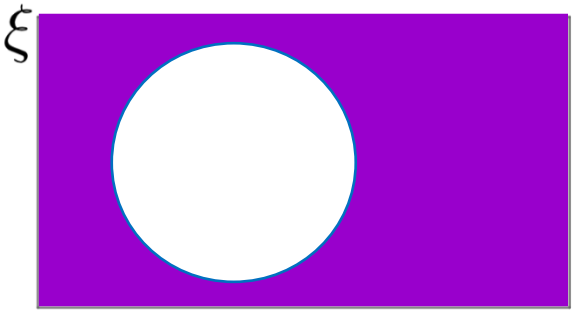
2) Shade B.



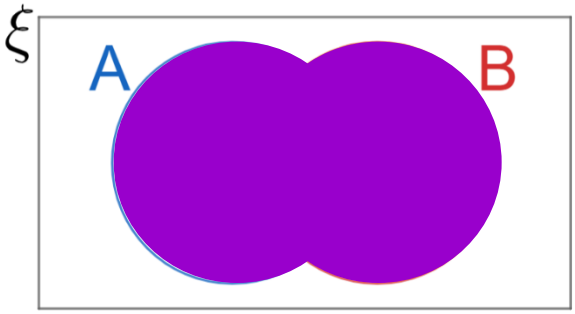
3) Shade $A \cap B$.



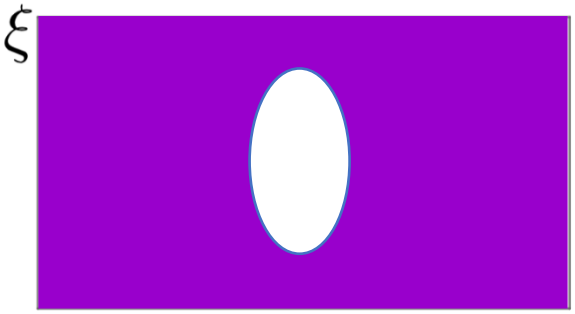
4) Shade A'.



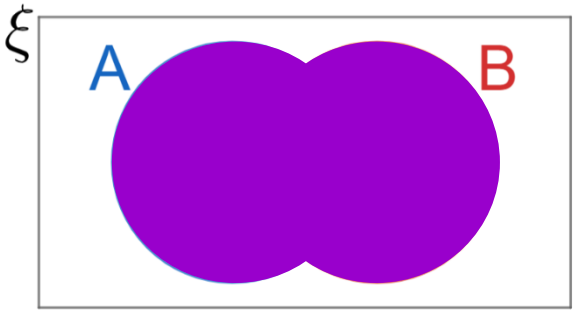
5) Shade $A \cup B$.



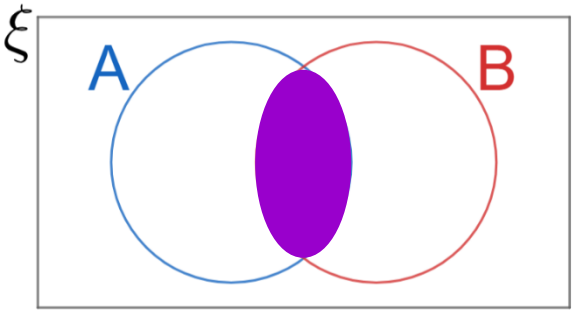
6) Shade $\overline{A \cap B}$.



7) Shade $A \; or \; B$.



8) Shade $A \; and \; B$.



9) Create a Venn Diagram to represent the following scenario.

100 people were asked if they liked Math, Science, or Social Studies. Everyone answered that they liked at least one.

56 like Math

43 like Science

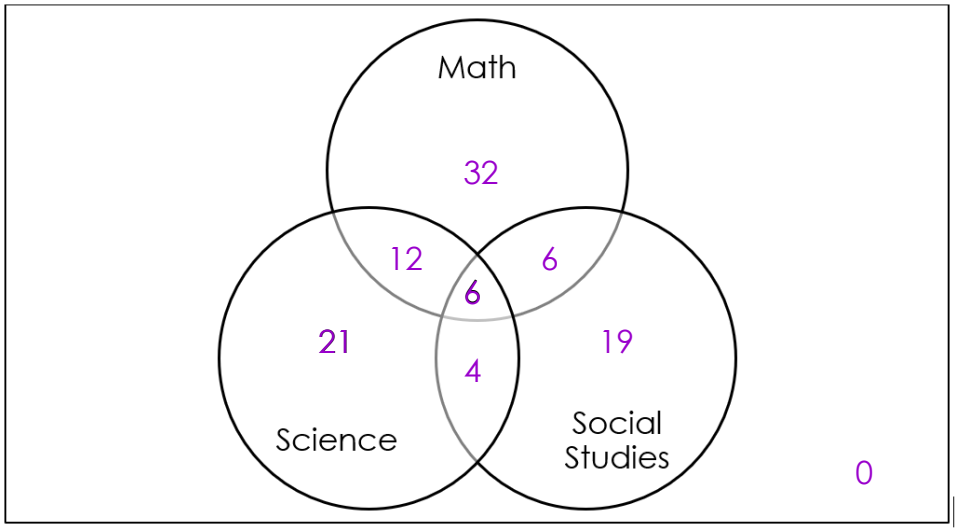
35 like Social Studies

18 like Math and Science

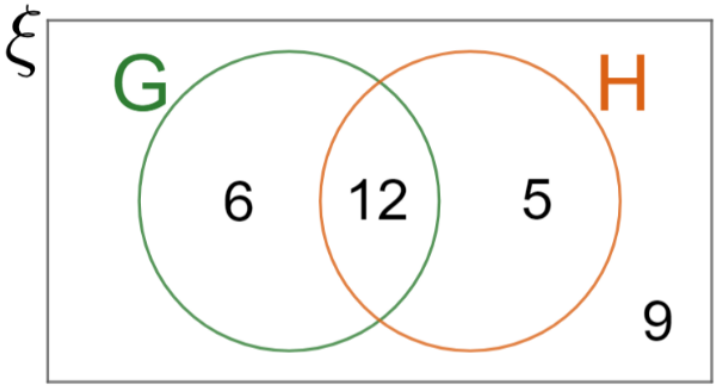
10 like Science and Social Studies

12 like Math and Social Studies

6 like all three subjects



10) The Venn Diagram below represents how many students in Mrs. Hill's advisement are currently taking Geography (G) and History (H). Use this information to answer the following questions.



a) $P(G) = \frac{18}{32} = 0.56$

b) $P(H) = \frac{17}{32} = 0.53$

c) $P(G \cup H) = \frac{23}{32} = 0.72$

d) $P(G \cap H) = \frac{12}{32} = 0.38$

e) $P(\overline{G \cup H}) = \frac{9}{32} = 0.28$

f) $P(G \text{ and } H) = \frac{12}{32} = 0.38$

g) $P(G \text{ or } H) = \frac{23}{32} = 0.72$

h) $P(\bar{G}) = \frac{14}{32} = 0.44$

11) Given a 6-sided fair die, find the following: *possible outcomes: 1, 2, 3, 4, 5, 6*

a) the probability of rolling a 2.

favorable outcomes: 2 $\frac{1}{6} = 0.17$

b) the probability of rolling an odd number.

favorable outcomes: 1, 3, 5 $\frac{3}{6} = 0.5$

c) the probability of rolling a prime number.

favorable outcomes: 2, 3, 5 $\frac{3}{6} = 0.5$

1 is neither prime nor composite

d) the probability of rolling an even number or a 6.

favorable outcomes: even: 2, 4, 6 6: 6 $\frac{3}{6} = 0.5$

e) the probability of rolling a 3 or a 4.

favorable outcomes: 3: 3 4: 4 $\frac{2}{6} = 0.33$

12) Given a standard deck of cards, find the following:

a) the probability of drawing a red card.

$$\frac{26\ red\ cards}{52\ total\ cards} = 0.5$$

b) the probability of drawing a King.

$$\frac{4\ Kings}{52\ total\ cards} = 0.08$$

c) the probability of drawing a black Ace.

$$\frac{2\ black\ Aces}{52\ total\ cards} = 0.04$$

d) the probability of drawing a face card.

$$\frac{12\ face\ cards\ (3\ in\ each\ suit \cdot 4\ suits)}{52\ total\ cards} = 0.23$$

e) the probability of drawing a face card or a spade.

$$\frac{12\ face\ cards + 13\ spades - 3\ face\ cards\ that\ are\ spades}{52\ total\ cards} = \frac{22}{52} = 0.42$$

f) the probability of drawing a 8 or a 10.

$$\frac{4\ 8's + 4\ 10's}{52\ total\ cards} = \frac{8}{52} = 0.15$$

g) the probability of drawing a face card given the card is black.

$$\frac{6\ face\ cards\ that\ are\ black}{26\ black\ cards} = 0.23$$

h) the probability of drawing an Ace given the card is a diamond.

$$\frac{1\ Ace\ that\ is\ a\ diamond}{13\ diamonds} = 0.08$$

i) the probability of drawing a 4 of clubs.

$$\frac{1\ 4\ of\ clubs}{52\ cards} = 0.02$$

13) The following two way frequency table displays information about passenger survival on the Titanic. Use it to find the following probabilities.

	Survived	Did Not Survived	Total
First Class Passengers	201	123	324
Second Class Passengers	118	166	284
Third Class Passengers	181	528	709
Total Passengers	500	817	1317

a) $P(first\ class) =$

$\frac{324\ total\ first\ class}{1317\ total\ passengers} = 0.25$

b) $P(survived) =$

$\frac{500\ total\ survived}{1317\ total\ passengers} = 0.38$

c) $P(second\ class\ \cap survived) =$

$\frac{118\ second\ class\ that\ survived}{1317\ total\ passengers} = 0.09$

d) $P(third\ class\ \cup did\ not\ survive) =$

$\frac{709\ third\ class + 817\ did\ not\ survive - 528\ third\ class\ who\ did\ not\ surive}{1317\ total\ passengers}$

$= \frac{998}{1317} = 0.76$

e) $P(first\ class \mid survived) =$

$\frac{201\ first\ class\ who\ survived}{500\ total\ survived} = 0.4$

f) $P(survived \mid first\ class) =$

$\frac{201\ first\ class\ who\ survived}{324\ total\ first\ class} = 0.62$

g) $P(\overline{third\ class}) =$

$\frac{608\ not\ in\ third\ class}{1317\ total\ passengers} = 0.46$

h) $P(second\ class\ or\ third\ class) =$

$\frac{284\ second\ class + 709\ third\ class}{1317\ total\ passengers} = \frac{993}{1317} = 0.75$

i) $P(first\ class\ \cap did\ not\ surive) =$

$\frac{123\ first\ class\ who\ did\ not\ survive}{1317\ total\ passengers} = 0.09$

j) $P(second\ class\ or\ survived) =$

$\frac{284\ second\ class + 500\ survived - 118\ second\ class\ who\ survived}{1317\ total\ passengers}$

$= \frac{666}{1317} = 0.51$

k) $P(third\ class\ and\ survived) =$

$\frac{181\ third\ class\ who\ survived}{1317\ total\ passengers} = 0.14$