

Name: Key

Section (Circle One): 8:00 - 8:50      10:00 - 10:50

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## Math 110 Supplemental Instruction Worksheet 2

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1. The following table gives the number of threatened and endangered animal species in the world as of January 2010.

	Endangered (E)	Threatened (T)	Totals
Amphibians and reptiles (A)	101	52	153
Birds (B)	256	23	279
Fishes (F)	85	66	151
Mammals (M)	325	35	360

Using the table, find number of species in each of the following sets.

- (a)  $A \cap T$

$$52$$

- (b)  $(B \cup F) \cap E'$

$$23 + 66 = 89$$

- (c)  $M' \cup T$

$$101 + 52 + 256 + 23 + 85 + 66 + 35 = 618$$

2. On the way home, you pass through two stop lights, each of which can be Red, Yellow or Green. When you arrive at home, you write down the color of the lights that you passed.

- (a) What is the sample space for this experiment?

$$S = \{GG, GY, GR, YG, YY, YR, RG, RY, RR\}$$

- (b) What is the probability that you had to stop at at least one red light on the way home?

$$E = \{GR, YR, RG, RY, RR\}$$

$$P(E) = \frac{5}{9}$$

3. In a classroom of students, 7 people are wearing hats, 5 people are wearing hats and glasses and 13 people are wearing hats or glasses. How many are wearing glasses?

$$n(\text{hats}) = 7$$

$$n(\text{hats \& glasses}) = 5$$

$$n(\text{hats or glasses}) = 13$$

$$13 = 7 + n(\text{glasses}) - 5$$

$$n(\text{glasses}) = 11$$

4. One jar contains four balls, labeled 1, 2, 3 and 4. A second jar contains three balls, labeled 1, 2 and 3. An experiment consists of taking one ball from the first jar, and then taking one ball from the second jar.

- (a) Write the sample space  $S$  for this experiment.

$$S = \{ (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), \\ (3,1), (3,2), (3,3), (4,1), (4,2), (4,3) \}$$

- (b) Write out the event "Both numbers are even".

$$E = \{ (2,2), (4,2) \}$$

- (c) Find the probability that both numbers are even.

$$P(E) = \frac{2}{12} = \frac{1}{6}$$

- (d) Find the probability that the sum of the numbers is 5.

$$E = \{ (2,3), (3,2), (4,1) \}$$

$$P(E) = \frac{3}{12} = \frac{1}{4}$$