Probability Worksheet #3
September 26, 2018
2 Points

Circle one name.

Name: Solutions Name: _____ Name: _____

1. On Friday I will collect the names for the project groups—you will need to join a group of total size 3 or 4. So you may wish to discuss this a little bit today with fellow students.

2. Express as a single fraction (does not need to be simplified):

   (a) $1 - \frac{3}{8}$ $\frac{8}{8} - \frac{3}{8} = \boxed{\frac{5}{8}}$

   (b) $\frac{1}{3} + \frac{2}{5}$ $\frac{1(5)}{3(5)} + \frac{2(3)}{5(3)} = \frac{5}{15} + \frac{6}{15} = \boxed{\frac{11}{15}}$

   (c) $1\frac{7}{16}$ $\frac{16+7}{16} = \boxed{\frac{23}{16}}$

3. Suppose we choose a real number at random (all equally likely) from the interval $[10, 60]$. Find the probability that our number is in

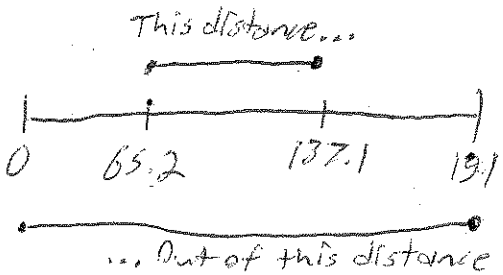
   (a) $[20, 35]$ $\frac{35-20}{60-10} = \frac{15}{50} = \frac{3}{10}$

   (b) $[15.3, 42.9]$ $\frac{42.9-15.3}{60-10} = \frac{27.6}{50}$

   (c) $[20, 45] \cap [25, 50]$ $\frac{45-25}{60-10} = \frac{20}{50} = \frac{2}{5}$

   (d) $[20, 30] \cup [25, 50]$ $\frac{50-20}{60-10} = \frac{30}{50} = \frac{3}{5}$

4. Interstate I 64 stretches east and west across the state of Kentucky with the 0 mile marker at the west end and the 191 mile marker at the east end. The Midway exit is at mile marker 65.2. The Morehead exit is at mile marker 137.1. You are driving a car that you know will breakdown sometime on I 64 In Kentucky. It is equally likely to break down at any particular spot. What is the probability that it breaks down between Midway and Morehead?



$\frac{137.1-65.2}{191-0}$ ← distance between Morehead and Midway; ← total distance of I 64

$= \boxed{\frac{71.9}{191}}$