Please complete this worksheet by **November 29th, 2021 by 11:59 pm**.

Once you upload a picture of your work (here), the solutions will become available so you can study for the weekly quizlet, which may draw one problem from this week’s worksheets.

**Problem 1**

To play *Powerball*, America’s largest lottery, a player picks any five distinct integer numbers from 1 to 69 and an additional number called the *Powerball number* from 1 to 26 (it is possible that the powerball number is the same as one of the other five numbers picked). The player wins the jackpot if they match all six numbers announced at the drawing (that consists of five distinct numbers from 1 to 69 and a powerball number from 1 to 26).

(a) What is the probability of winning the jackpot?

(b) What is the probability of matching exactly five (which might include the powerball number) out of the six numbers?

**Problem 2**

Recall that a standard deck of cards contains four suits and thirteen values for cards, giving a total of 52 cards. What is the probability of a 5-card poker hand that

(a) has the two of diamonds (2♦) and the three of spades (3♠)?

(b) contains three-of-a-kind?