COUNTING AND PROBABILITY WORKSHEET

A Michigan license plate has three letters followed by four digits. How many possible license plates are there?

Ten swimmers compete in an Olympic final.
a. How many possible orders are there?
b. How many possible choices are there for the Gold, Silver, and Bronze medals?

A password must use ten lowercase letters or digits. How many are there with
a. no further restrictions
b. no repeated letters or digits
c. no consecutive repeated letters or digits
d. not all letters or all digits

A class of twelve students has students work in groups of size N. How many such groups are there when
a. N = 2
b. N = 3

A lottery has contestants attempt to pick 5 of 50 numbers. What is the probability of winning?

A fair coin is tossed six times. Find the probability of obtaining
a. six heads

b. exactly three heads

c. at least four heads

How many ways are there to arrange seven people at a table if the table is
a. linear

b. circular (rotation allowed)

How many positive integer factors do the following integers have?
a. 21

b. 105

c. 120

d. 2^{10}

Find the number and probability of the following five-card poker hands.
a. royal flush (10-Ace of a single suit)

b. straight flush (five consecutive cards of a single suit)

c. four of a kind

d. full house (three of one kind, two of another)

e. flush (five of one suit)

f. straight (five consecutive cards)

g. three of a kind

h. two pair

i. one pair

j. no pair