MATH 118 **Chapter 3 Review**

1. Using the digits 1,2,3,4,5,6,7 and 8. How many different 4 digits even numbers can be formed with no repetition?
   [A] 840 [B] 168 [C] 2048 [D] 203

2. A group of 9 students are applying for summer jobs. How many ways the group can be divided into 3 equal but distinguishable groups?
   [A] 280 [B] 540 [C] 1280 [D] 1680

3. A group of 9 students are applying for summer jobs. How many ways the group can be divided into 3 equal but undistinguishable groups?
   [A] 280 [B] 540 [C] 1280 [D] 1680

4. Ten people attended a party. If each person in the party shakes hand with every other person, how many handshakes will have been made?
   [A] 90 [B] 45 [C] 20 [D] 10

5. Tom is planning to visit Chicago, Denver, Portland and Seattle. How many possible schedule does he have if has to visit Portland and Seattle one after the other?
   [A] 6 [B] 24 [C] 12 [D] 30

6. A test consists of 6 true-false questions and 8 multiple-choice questions, which contain 4 responses each. If each question has only one correct response, how many ways can a student respond to the fourteen questions on the test?
   [A] $2^6 + 4^8$ [B] $2^6 \cdot 4^8$ [C] $6^2 + 8^4$ [D] $6^2 \cdot 8^4$

Four married couples to be seated in a row of 8 chairs. How many seating arrangement are possible if:

7. All men want to sit together and all women want to sit together?
   [A] 1152 [B] 576 [C] 40320 [D] 80640

8. No one is seated next to another of the same sex (alternate)?
   [A] 1152 [B] 576 [C] 40320 [D] 80640

9. Each married couple must sit side by side?
   [A] 192 [B] 24 [C] 384 [D] 96

A team of 4 people will be selected out of 8 men and 10 women. How many different team can be formed if the team:

10. Must have at least 1 man and at least 2 women
    [A] C(8,1).C(10,2) [B] C(8,1).C(10,3)+C(8,2).C(10,2) [C] C(8,2).C(10,2) [D] C(8,1)+ C(10,2)

11. Must include exactly 2 women .
    [A] C(8,2) + C(10,2) [B] C(8,2) [C] C(10,2) [D] C(8,2).C(10,2)

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12. If you have 5 shirts, 4 pair of slacks and 2 pair of shoes, how many different outfit can you have?
    [A] 30 [B] 40 [C] 60 [D] 24

In a box there are : 12 red books, 10 white books and 5 blue books. If 4 books are selected , in how many different ways this can be done if:

13. They must include more than one color
    [A] C(27,4) - C(12,4) - C(10,4) [B] C(27,4) - C(12,4) - C(10,4) - C(5,4)
    [C] C(27,4) - C(10,4) [D] 3.C(12,2).C(10,1).C(5,1)

14. They must include same color
    [A] C(27,4) - C(12,4) - C(10,4) [B] C(12,4) + C(10,4)
    [C] C(12,4) + C(10,4) + C(5,4) [D] C(27,4) - C(12,4) - C(10,4) - C(5,4)

15. They must include at least 1 red
    [A] C(12,1).C(15,3) [B] C(27,4) - C(15,4)
    [C] C(27,4) - C(12,0) [D] C(12,3).C(15,1)