Name: _____ Date: _____

Math 422- Mrs. Bagala Quarter 1 Review 1

Show all necessary work to receive full credit.

1. How many 12-letter arrangements are possible using the letters in the word TRIGONOMETRY?

2. A class consists of 6 boys and 5 girls.

(a) If 4 students are chosen at random, find the number of ways 2 boys and 2 girls can be chosen.

(b) Find the number of ways that at least 9 students can be chosen.

3. Solve the equation: $y^5 + 4y^4 + 3y^3 = 0$

4. Find all values of x that make the expression undefined: $\frac{x^2+4x-12}{x^2-2x-15}$.

5. A die is rolled:

(a) What is the probability that the number rolled is greater than 3 and odd?

(b) What is the probability that the number rolled is greater than 3 or odd?

A die is rolled twice:

(a) What is the probability that the first roll is a 3 and the second roll is any odd number?

(b) What is the probability that one roll is a 1, 2, or 3 and the other roll is a 5?

6. Solve algebraically for all values of x: $\frac{3}{x+5} = \frac{2x}{x^2-8}$

7. Factor $x^4 + 2x^3 + x + 2$ completely.

8. A teacher has announced that Alex, Ben, and Chris, three students in the class, will be giving a presentation today. How many possible ways are there for the teacher to choose the order in which these students will give their reports?

9. A pet shop owner bought 3 parakeets, 5 canaries, and 4 doves.

(a) He selects 8 birds at random to display in his front window. How many different 8-bird selections could he make?

(b) How many 8-bird selections will contain 3 parakeets, 2 canaries, and 3 doves?

(c) If the owner decides to only display canaries, how many ways can he select at most 3?

10. Solve for all values of x: $6x^3 = 4x - 5x^2$

11. If 2 cards are randomly drawn from a standard deck with replacement, find the probability that a king and a spade are chosen.

SKIP

12. If the probability that an event occurs can be represented by $\frac{1}{x}$, express the probability of its complement in simplest form.

13. Solve for n: $\frac{n+5}{n^2-2n} + \frac{n+4}{n^3-10n^2+16n} = \frac{1}{n}$

14. What is the solution of the system of equations $c + 3d = 8$ and $c = 4d - 6$?

15. Jim bought 3 packets of vegetable seeds: beans, carrots, and radishes; and 2 packets of flower seeds: marigolds and petunias. Finding that his garden was too small, he decided to give away one packet of vegetable seeds and one packet of flower seeds, each selected randomly.

(a) Draw a tree diagram **and** list a sample space to show all possible pairs of packets that he may select to give away.

(b) Find the probability that he did not give away the packet of bean seeds.

(c) Find the probability that he did not give away two packets of vegetable seeds.

(d) Find the probability that he gave away the packet of petunia seeds.

16. Simplify the expression: $\frac{x^2-4}{2x+6}\cdot\frac{6x+18}{x^2+3x-10}+\frac{5-x}{x^2+9x+20}\div\frac{3x-15}{6x+30}$