MATH 0965 Spring 2020 Mike McCraith
Exam 1

DO NOT TURN THIS PAGE UNTIL YOU ARE INSTRUCTED TO DO SO

- Write your name below on the space provided.
- This test has a total of 4 pages.
- Work the problem in the space provided. If you need more space, write on the back of the test. Be sure to label the test as to which problem is on the back.
- To insure maximum credit, show your work. In general, full credit will not be given for unsupported answers.
- Be sure to write neatly in pencil. If I cannot read what was written, do not expect the problem to be graded.
- If you finish early, go over the test again.

Good luck!

Number	Maximum	Score
1	2	
2	2	
3	6	
4	6	
5	16	
6	16	
7	5	
8	16	
9	5	
10	5	
11	2	
12	3	
13	8	
14	8	
Total	100	

Name _____

CIRCLE FINAL ANSWERS

1) (2 points) What does it mean to factor?

2) (2 points) What is the first step of factoring?

3) (3 points each) Find the GCF of the following:

a) x^2y^3, x^5y^3, x^4y^2

b) $-16p^7,\ 8p^5q,\ 40p^8q^2$

4) (3 points each) Factor out the GCF from the following:

a) $50y^2 - 50xy^2 + 5x^2y^2$

b) $5t^2(x+6) - (x+6)$

5) (5 points each) Factor completely:

a) $x^2 - 4x - 12$

b) $x^2 + 10x + 25$

c) $x^3 - 7x^2 + 6x - 42$

d) $2a^2 + ab - 6a - 3b$

6) (5 points each) S'more factoring completely:

a) $x^2(x-9)-4(x-9)$

b) $-5w^4-15w^3+90w^2$

c) x^4-625

d) $8x^3-8$

7) (1 point each) Match the factored form to the expanded form:

_____ $(a+b)^2$

_____ $(a-b)^2$

_____ $(a+b)(a-b)$

_____ $(a+b)(a^2-ab+b^2)$

_____ $(a-b)(a^2+ab+b^2)$

A: $a^2-2ab+b^2$

B: a^2-b^2

C: a^3+b^3

D: $a^2+2ab+b^2$

E: a^3-b^3

8) (5 points each) Solve the following equations for the variable:

a) $(8x+7)(5x-2)=0$

b) $x^2+6x+5=0$

c) $-2x^4-28x^3-96x^2=0$

d) $10x^2+11x+3=0$

9) (5 points) The product of two consecutive odd whole numbers is 47 more than their sum. What are the two odd numbers?

10) (5 points) While mid-air, a cow gymnast calculates that the distance her hooves off the ground can be approximated by the function $h(t) = -16t^2 + 72t + 88$ where t is time in seconds and h is height in feet. At what time will the cow's hooves land on the ground?

11) (3 points) How do you find the domain of a rational function?

12) (4 points) Find the domain of the function $f(x) = \dfrac{x^2 + 4x + 4}{x^2 + 9x + 8}$:

13) (5 points each) Perform the indicated operation. You may leave the answer in factored form:

a) $\dfrac{x^2 - 2x - 3}{x^2 - 6x - 7} \cdot \dfrac{x^2 - 5x - 14}{4x^2 + 8x}$

b) $\dfrac{10x - 50}{x^2 + 6x + 9} \div \dfrac{x^2 - 25}{x^2 + 8x + 15}$

14) (3 points each) For the rational expressions $\dfrac{5}{x^2 - 4}$ and $\dfrac{7}{8x + 16}$, …

a) Find the LCD of their denominators:

b) Rewrite each fraction to have the LCD that you found as the new denominator: