

Name \_\_\_\_\_

Date \_\_\_\_\_

You need to get 75% or better to place out of MTH 065. Answers are right or wrong. State your answers exactly unless otherwise noted. Circle your final answers.

**No Calculator! Enjoy. : )**

— Laws of Exponents (Answers may not use negative exponents.)

1. Simplify:  $x^2x^4$

3. Simplify  $(x^2)^4$

2. Simplify:  $(3x)^2$

4. Simplify  $\frac{15x^3y^2}{20x^2y^3}$

— Operations with Polynomials

5. Subtract & Simplify:  
 $(2x^2 - 3x + 2) - (x^2 - 3x)$

7. Multiply & Simplify:  $(x + 2)(2x - 1)$

6. Multiply & Simplify:  $2x(3x^2 + 3x - 5)$

8. Divide & Simplify:  $\frac{15x^3 - 10x^2 - 5x}{5x}$

— Factoring Quadratics

9. Factor:  $x^2 + 7x + 10$

11. Factor:  $x^2 - 9$

10. Factor:  $x^2 - 3x - 10$

12. Factor:  $4x^2 - 12x + 9$

— Solving Quadratic Equations

13. Solve for x:  $(2x - 3)(4x + 5) = 0$

15. Solve for x:  $x^2 - 5x - 14 = 0$

14. Solve for x:  $x^2 - 3x = 0$

16. Solve for x:  $x^2 - 5x - 14 = 0$

— Solving Non-Factorable Quadratics

17. To “complete the square” what must be added to  $x^2 - 6x$  ?

19. Solve:  $x^2 - x - 1 = 0$

18. Solve:  $2x^2 - 10 = 0$

20. Solve:  $x^2 + 2x = 10$

— Conics

21. What is the vertex of the parabola  $y = 2(x - 7)^2 - 11$ ?

24. Graph  $f(x) = (x + 2)^2 - 4$ .

22. What is the radius of the circle  $x^2 + (y + 2)^2 = 49$ ?

23. What are the vertices of the ellipse  $\frac{x^2}{4} + \frac{y^2}{16} = 1$ ?

