Math Tier 3 Practice Test

1. Determine the domain of the function

$f(x) = \sqrt{6x - 24}$

2. Solve the systems of three variables

5x+2y+3z=-2
X+3y+z=2
4x+y+2z=-4

3. $Given\ f(x) = -2x^2 + 5, evaluate\ f(6)$

4. $Given\ g(x) = 2x - 6, determine\ g(a + 1)$

5. True or False? The relation {(5,4), (3,2), (4,5), (2,1)} is a function.

6. Name the domain and range for the relation: {(-7,0), (-5,1), (2,8), (6,5), (7,7)}

7. Solve using the quadratic formula, Leave answer in simplified radical form:

$4x^2 + 16x + 6 = 0$

8. Solve using the quadratic formula, leave answer in simplified radical form:

$w^2 - 2w = -5$

9. Solve

$4x^2 + 20x + 25 = 8$

10. Solve by completing the square

$x^2 - 12x - 4 = 0$

11. Perform the indicated operation

(6+2i) + (6+2i)

12. Factor

$x^3 + 64y^3$

13. Simplify

$\sqrt{-40}$

14. Write $5 + \sqrt{-16}$ as a complex number

15. Solve

$\sqrt{p - 4} + 7 = 10$

16. Two painters working together can complete a job in 6 hours. Working alone, one painter takes three times as long as the other painter. How many hours would each painter need to complete the job alone?

17. Rationalize the denominator and simplify

$\frac{\sqrt{18x}}{\sqrt{5y}}$

18. Perform the indicated operations and leave answer in simplest form

$\frac{6}{x - 4} + \frac{-8x - 10}{x^2 - x - 12}$

19. Factor completely $64x^2 - 81$	20. Simplify $(x + \sqrt{3})^2$
21. Determine whether the ordered pair (6,3) is a solution to the given system: 5x-2y=24 and 2x+y=6	22. Simplify $5x\sqrt{3} - 4\sqrt{3x^2} - x\sqrt{27}$

23. Simplify $2x\sqrt{3x} * 4x^2\sqrt{6x^2} \quad ; x \geq 0$	24. Factor $4m^2 - 144 = 0$
25. Write $\sqrt[4]{d^6}$ *as an expression with a rational exponent*	26. Factor $x^2 - 2x - 35$
27. Simplify $\sqrt{144x^8y^2}$	28. Solve using the elimination method 3x-5y=1 and 2x-v=-4