Math 3 - Unit 6 Test Review
Name_____   Date: _____

#1-3: Simplify and state any restrictions.

1. $\dfrac{x-3}{x^2-8+15}$

1. Simplify: _____

   Restrictions: _____

2. $\dfrac{x^2+9x+18}{x+3} \cdot \dfrac{5x-10}{x+6}$

2. Simplify: _____

   Restrictions: _____

3. $\dfrac{2x+8}{(x+4)(x-3)} \div \dfrac{(x-1)}{x^2-5x+6}$

3. Simplify: _____

   Restrictions: _____

4. Simplify $\dfrac{t^2+6t+8}{(t+2)(t-5)} \cdot \dfrac{2t-10}{(t-5)(t+4)}$.

4. _____

5. Simplify $\dfrac{x^2-81}{(x+9)(x+1)} \div \dfrac{x^2-10x+9}{(x+1)(x-1)}$.

5. _____

#6-8: Add or subtract and state any restrictions.

6. $\dfrac{1}{4x} + \dfrac{x}{7y}$

LCD: _____

6. Simplify: _____

Restrictions: _____

7. $\dfrac{2}{x^2+7x-18} + \dfrac{1}{x-2}$

LCD: _____

7. Simplify: _____

Restrictions: _____

8. $\dfrac{5n}{n^2-9} - \dfrac{3}{n-3}$

LCD: _____

8. _____

#9-11. Solve the following.

9. Susie can plant a garden in 8 hours. With the help of Jill, they can plant the garden in 5 hours. How long would it take Jill to plant the garden by herself?

9. X= _____

10. $\dfrac{9}{x^2-4} = \dfrac{3}{x+2}$

10. X= _____

11. $\dfrac{3x}{x+2} + \dfrac{1}{4} = \dfrac{3}{4x+8}$

11. X= _____

12. What is the equation of the <u>vertical asymptote</u> for the

graph of $f(x) = \dfrac{x^2+7x+12}{x-3}$?

12. _____

13. What is the equation of a <u>horizontal asymptote</u> for the

graph of $f(x) = \dfrac{4x+9}{2x+3}$?

13. _____

For questions 14-15, identify the following.

14. $y = \dfrac{x}{x^2 - 6x}$

14. Simplify: _____ H.A.: _____

Hole(s): _____ V.A.: _____

X-intercept: _____ Y-intercept: _____

Domain: _____

Range: _____

15. $y = \dfrac{x^2 - 2x - 15}{2x^2 - 10x}$

15. Simplify: _____ H.A.: _____

Hole(s): _____ V.A.: _____

X-intercept: _____ Y-intercept: _____
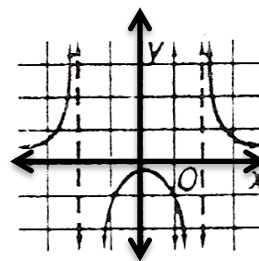
Domain: _____

Range: _____

16. Which equation represents the graph shown?

16. _____

A. $y = (x + 2)(x - 2)$ B. $y = (x + 2)(x + 2)$

C. $y = \dfrac{4}{(x-2)(x-2)}$ D. $y = \dfrac{1}{(x-2)(x+2)}$