Honors Math II
Unit 8 Review

Name_____
Period_____Date_____

Find the vertical asymptote(s) and x-intercepts of the graph of the function.

1. $f(x) = \frac{x-4}{2x^2 - x - 6}$

2. $g(x) = \frac{x^2 - 3x - 10}{3x^2 - 10x - 8}$

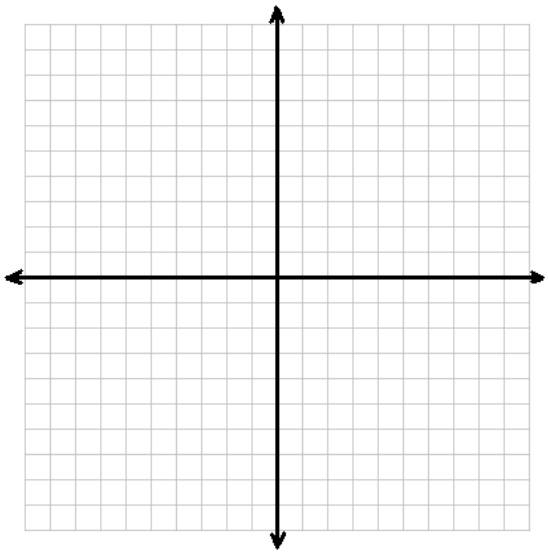
3. $f(x) = \frac{6x^2 - x - 2}{x^2 - 4}$

4. $f(x) = \frac{3x-7}{x^2 - 2x - 15}$

Graph the function. Show the asymptotes and the intercepts.

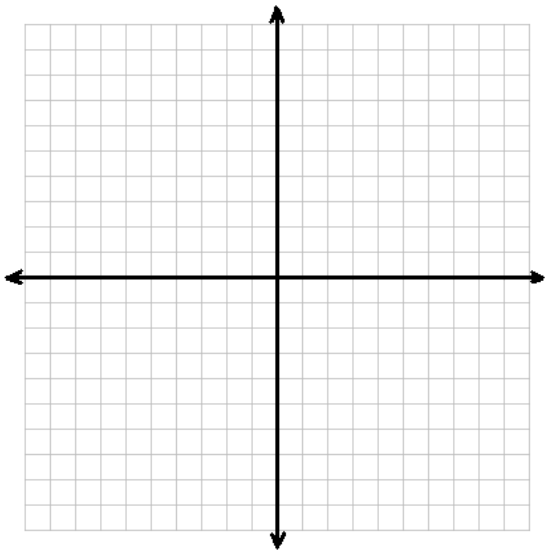
5. $f(x) = \frac{1}{x^2 - 25}$

x-intercept:
y-intercept:
Vertical asymptotes:
Horizontal Asymptotes:



6. $f(x) = \frac{x+1}{x^2 - 2x + 1}$

x-intercept:
y-intercept:
Vertical asymptotes:
Horizontal Asymptotes:



Simplify the rational expression, if possible.

7. $\frac{x^2+8x+15}{x^2-25}$

8. $\frac{2x^2-6x}{x^3-27}$

Perform the indicated operation(s) and simplify.

9. $\frac{3x^3}{6y^3} \cdot \frac{y^5}{x^5}$

10. $\frac{2y^2}{3} \cdot \frac{12x}{5y}$

11. $\frac{2x-3}{(x+3)^2} \cdot \frac{x^2+4x+3}{4x^2-9}$

12. $\frac{x^2+4x}{x^2-6x+8} \cdot \frac{x^2-x-2}{3x^3+12x^2}$

13. $\frac{x^2-25}{x+8} \div (x-5)$

14. $\frac{x^2+8x-20}{5x^3+50x^2} \cdot \frac{x^2+9x}{x^2+7x-18}$

15. $\frac{(x+7)}{x^2+5x-14} \div \frac{x^2+x-6}{x+3}$

16. $\frac{(2x^2y^3)^2}{(x^3y^2)^3} \div \frac{(4x)^2y^3}{(xy)^4}$

17. $\frac{-3x-7}{-20x} + \frac{x+7}{-20x}$

18. $\frac{9}{x-3} + \frac{2}{3-x}$

19. $\frac{3x+4}{x^2-16} - \frac{2}{x-4}$

20. $\frac{2x+1}{6} - \frac{4}{x+6}$

21. $\frac{x+1}{2x} + \frac{2x+3}{4(x+1)} - \frac{5}{12x^2}$

22. $\frac{\frac{1}{x} - 2}{\frac{3}{x} - \frac{1}{3x}}$

23. $\frac{\frac{4}{x-3} + \frac{2}{3}}{\frac{5}{x-3}}$

24. $\frac{\frac{2}{x+2} - \frac{3}{x}}{\frac{3}{x+2} + \frac{2}{x}}$

Solve the equation. Check for extraneous solutions.

25. $\frac{6}{x-3} = \frac{5}{x^2-9}$

26. $\frac{x}{30} - \frac{1}{5x} = \frac{1}{6}$

27. $\frac{x}{x+1} + \frac{1}{x-1} = \frac{4x-3}{(x+1)(x-1)}$

28. $\frac{2x}{x-2} = \frac{1}{x^2-4} + 1$

29. $\frac{11}{x^2+6x} = \frac{3}{x^2+6x} + \frac{8}{x}$

30. $\frac{5}{x^2+x-6} = \frac{x-3}{x-2} + 2$