PROBLEM SET 9-3

(Rational Functions and Their Graphs)

Describe the vertical asymptotes, holes and horizontal asymptote (if any) for the graph of each rational function.

1. $y = \dfrac{3}{x+2}$

2. $y = \dfrac{x^2+5}{x+5}$

3. $y = \dfrac{x+3}{2x^2+x-1}$

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

5. $y = \dfrac{x+5}{x^2+9}$

6. $y = \dfrac{6x^2+x-2}{3x^2+17x+10}$

7. $y = \dfrac{3x-4}{4x+1}$

8. $y = \dfrac{x^2-1}{x+1}$

Graph each rational function.

9. $y = \dfrac{2x+3}{x-5}$

10. $y = \dfrac{x^2+6x+9}{x+3}$

11. $y = \dfrac{3x}{(x+2)^2}$

12. $y = \dfrac{x+4}{x-4}$

13. $y = \dfrac{2x}{3x-1}$

14. $y = \dfrac{2}{x^2-4}$