**Pre-Calculus Honors Graphs of Rational Functions Supplemental Worksheet 2.6-2.7**

**All work must be shown to receive full credit. The use of graphing calculator is prohibited!**

For problems 1-5, find the following, if possible: a) domain, b) horizontal asymptote, c) vertical asymptote, d) holes, e) oblique asymptote, f) x-intercept(s), g) y-intercept, h) graph and i) range.

Then evaluate the indicated limits.

1. 

 a. $\lim\_{x\to \infty }f(x)$

 b. $\lim\_{x\to -\infty }f(x)$

 c. $\lim\_{x\to -3^{+}}f(x)$

d. $\lim\_{x\to -3^{-}}f(x)$

e. $\lim\_{x\to 1}f(x)$

2. 

a. $\lim\_{x\to \infty }f(x)$

 b. $\lim\_{x\to -\infty }f(x)$

 c. $\lim\_{x\to 3^{+}}f(x)$

3. 

a. $\lim\_{x\to \infty }f(x)$

 b. $\lim\_{x\to -\infty }f(x)$

c. $\lim\_{x\to -2^{+}}f(x)$

d. $\lim\_{x\to -2^{-}}f(x)$

e. $\lim\_{x\to 2}f(x)$

4. 

a. $\lim\_{x\to \infty }f(x)$

 b. $\lim\_{x\to -\infty }f(x)$

c. $\lim\_{x\to 3^{+}}f(x)$

d. $\lim\_{x\to 3^{-}}f(x)$

e. $\lim\_{x\to -\frac{5}{2}}f(x)$

5. 

a. $\lim\_{x\to \infty }f(x)$

 b. $\lim\_{x\to -\infty }f(x)$

 c. $\lim\_{x\to 3^{+}}f(x)$

d. $\lim\_{x\to 3^{-}}f(x)$

e. $\lim\_{x\to -\frac{5}{2}}f(x)$

Solve each rational equation. State the excluded values. Watch for extraneous solutions.

6. $\frac{2x-1}{x}=5$

7. $2-\frac{3}{x}=\frac{5}{x}$

8. $\frac{1}{x}-4x=3$

9. $\frac{2x+1}{x}=3x$

10. $\frac{x+5}{x-3}=x$

11. $\frac{x}{x-3}=x$

12. $\frac{x+3}{x+4}=x$

13. $\frac{1}{x}+\frac{1}{x+1}=1$

14. $\frac{1}{x}-\frac{1}{x+1}=1$

15. $\frac{2x-1}{3x}=x-1$

16. $\frac{2x-1}{3x}=\frac{3x}{2x-1}$

17. $\frac{3x+1}{2x^{2}}=2$

18. $\frac{3}{x-1}-\frac{2}{x-3}=\frac{5}{x^{2}-4x+3}$

19. $\frac{1}{x+1}+\frac{3}{x-3}=\frac{2}{x^{2}-2x-3}$

20. $\frac{4}{x-2}-\frac{1}{x-2}=\frac{3}{x^{2}-6x+8}$