Algebra 2
Unit 3 Test Review – Rational Expressions, Equations

Name:_____
Date:_____
Period:_____

Perform the indicated operations. **Don't forget to list the restrictions.**

1. $\dfrac{x^2-49}{x^2+19x+84}$

2. $\dfrac{14x^2y^4}{42x^6y}$

3. $\dfrac{8x^2+10x-3}{4x^2-9}$

4. $\dfrac{x^2-9x}{x^2-7x-18} \bullet \dfrac{x^2-9x-22}{3x^3+6x^2}$

5. $\dfrac{6x+30}{x^2-4x-45} \bullet \dfrac{x^2-81}{2x-22}$

6. $\dfrac{x^2-1}{x^2-64} \div \dfrac{x^2+3x-4}{2x^2-8x-64}$

7. $\dfrac{5x^2-15x}{10x^2} \div \dfrac{x^2-11x+24}{7x-56}$

8. $\dfrac{\dfrac{2x-5}{x^2-9}}{\dfrac{3x-1}{x+3}}$

9. $\frac{7+3x}{x^2-100}-\frac{2x-3}{x^2-100}$

10. $\frac{3x}{x-6}+\frac{6x}{4x-24}$

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

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

13. $\frac{5}{x+10}-\frac{4x}{x^2+12x+20}$

14. $\frac{1}{y+3}+\frac{2}{y^2+4y+3}$

Solve the following.

15. $\frac{6}{x}+\frac{5}{4}=\frac{-7}{4}$

16. $\frac{1}{r-5}=\frac{7}{2r}$

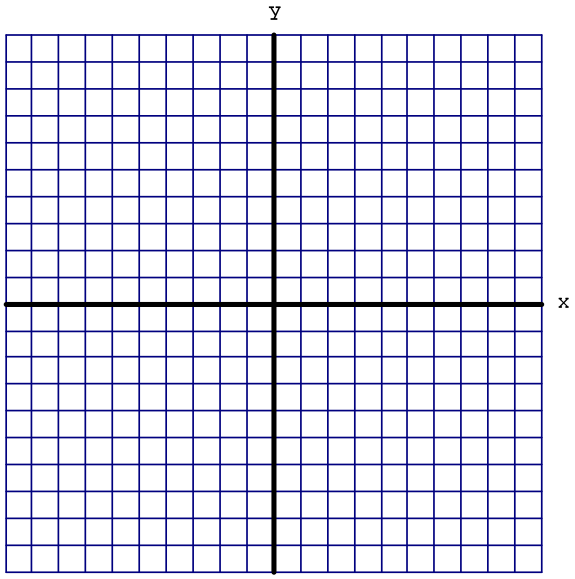
17. $\frac{1}{x-1}=\frac{x}{x-1}+\frac{x}{6}$

18. $\frac{x}{x-3}+\frac{x}{2}=\frac{6x}{2x-6}$

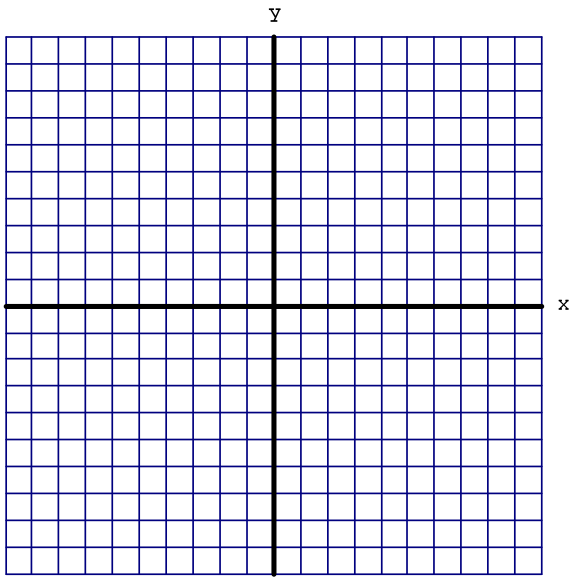
19. A large snowplow can clear a parking lot in 4 hours. A small snowplow needs more time to clear the lot. Working together, they can clear the lot in 3 hours. How long would it take the small plow to clear the lot by itself?

For the following functions, find:
a) vertical asymptote(s)
b) holes
c) x-intercept(s)
d) y-intercept
e) horizontal asymptote
f) graph the function using a table

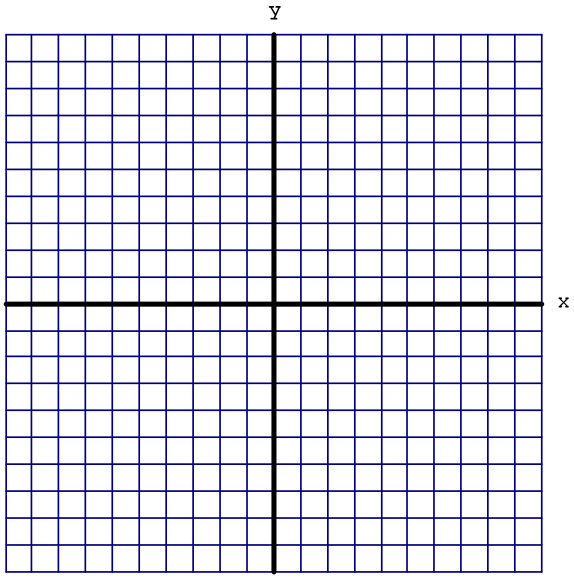
20. $y = \dfrac{x+1}{x^2+3x-10}$



21. $y = \dfrac{x^2+3x-4}{x+1}$



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



23. $y = \dfrac{x^2 - 25}{x^2 - 8x + 15}$