Accelerated Geom/Alg 2
Rational Functions Review

Name _____
Date _____ **Period** _____

1. For the given function, $(\boldsymbol{x}) = \frac{\boldsymbol{2x+1}}{\boldsymbol{x^2+5x+6}}$, state the following:

   Vertical Asymptote:_____ Domain:_____

   Horizontal Asymptote:_____

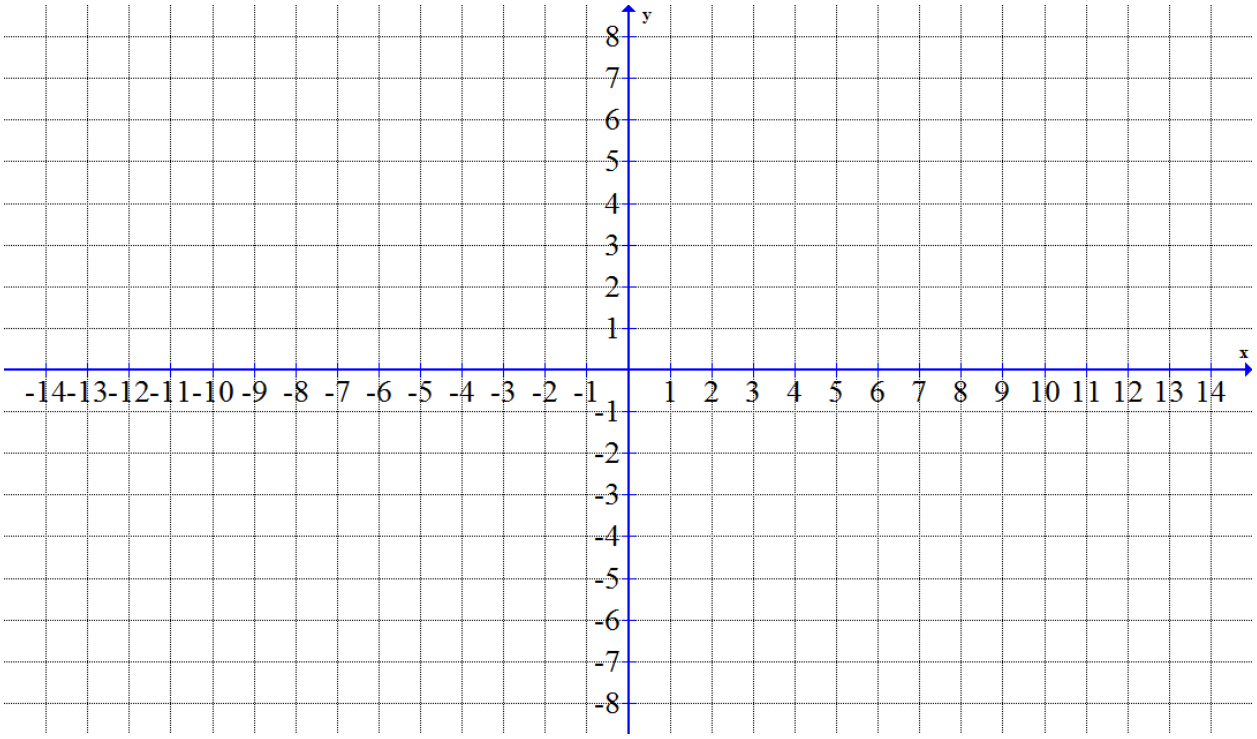
   Zeroes:_____ y-intercept:_____

2. For the function $h(\boldsymbol{x}) = \frac{\boldsymbol{5x+20}}{\boldsymbol{x^2-x-12}}$, graph and state the following:

   Vertical Asymptote:_____ Domain:_____

   Horizontal Asymptote:_____

   Zeroes:_____ y-int:_____



Perform the indicated operation and simplify.

3. $\frac{12x^2y}{5y^2} \bullet \frac{2xy}{3x^2}$

4. $\frac{x-11}{2x+10} \bullet \frac{x+5}{x^2-8x-33} \div \frac{x^2}{x+3}$

5. $\frac{x^2+x-20}{x+1} \div \frac{33x^2-132x}{16x+16} \div \frac{8x+40}{11x+44}$

6. $\frac{x}{x^2-x-30} - \frac{1}{x+5}$

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

8. $\frac{\left(\frac{2}{4x+12}\right)}{\left(\frac{4}{2x+6} + \frac{1}{x+3}\right)}$

9. $\frac{x^2-8x+12}{x^2+3x-10}$

10. $\frac{x^3-125}{x^2-25}$

11. $\frac{81x^9}{y^4} \bullet \frac{x^2y^7}{36x^5y}$

12. $\frac{5y^2-20}{25y^2} \div \frac{y^2+6y+8}{y^2+10y+24}$

13. $\frac{x^2-3x+2}{x+2} \bullet \frac{3x}{x-2} \div \frac{5x^2-5x}{2x+4}$

14. $\frac{x}{x-1} + \frac{5}{x-1}$

15. $\frac{2x^2}{x-2} - \frac{4x}{x-2}$

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

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

18. $\frac{\left(\frac{10}{x+1}\right)}{\left(\frac{1}{2} + \frac{3}{x+1}\right)}$

19. $\frac{\left(\frac{2}{x-3} - \frac{3}{x^2-9}\right)}{\left(\frac{1}{6x-18}\right)}$

Solve.

20. $\frac{2z}{5} = \frac{z^2 - 5z}{5z}$

21. $x - \frac{24}{x} = 5$

22. $\frac{3}{x+1} + \frac{x-2}{3} = \frac{13}{3x+3}$

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

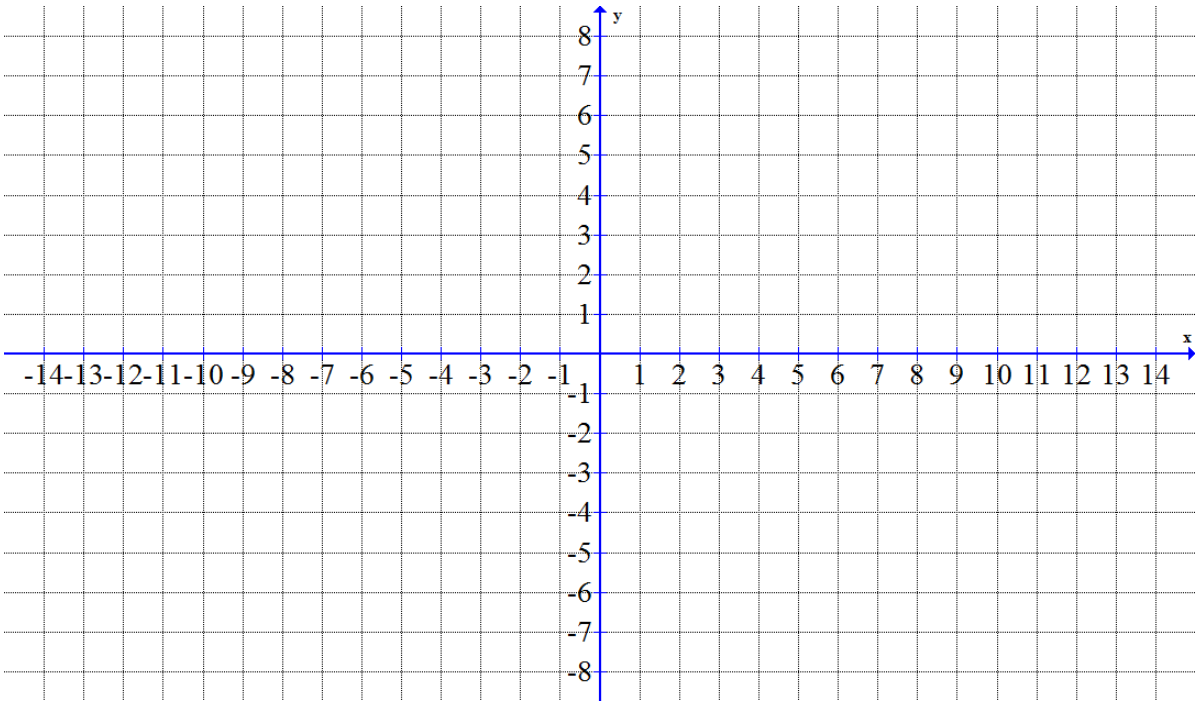
24. $\frac{2x+3}{x-6} + \frac{2(5x+11)}{2x^2-17x+30} = \frac{-2}{2x-5}$

25. For the function $h(x) = \frac{x^2+3x}{x^2-x-6}$ graph and state the following:

Vertical Asymptote:_____ Domain:_____

Horizontal Asymptote:_____ Range:_____

Zeroes:_____ y-int:_____

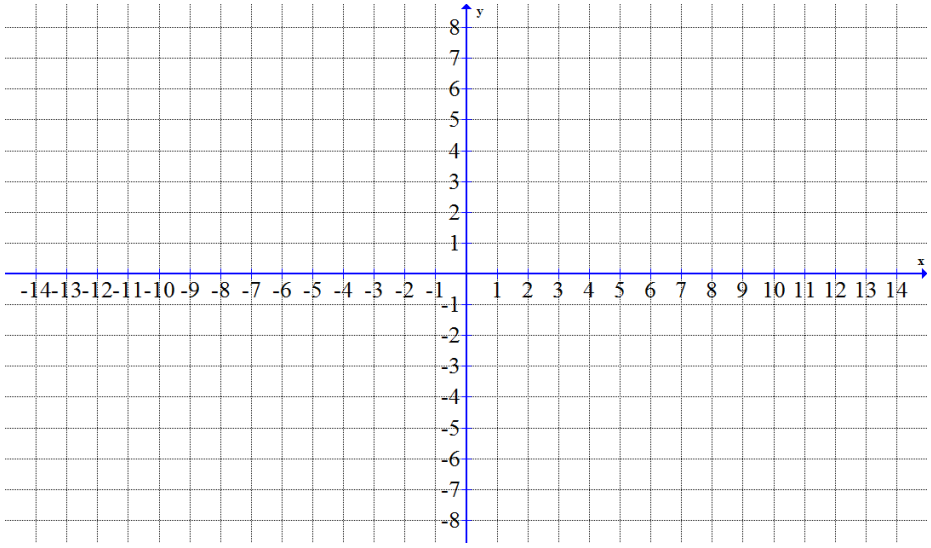


26. For the function $h(x)=\dfrac{x^2-x-6}{x^2-1}$ graph and state the following:

Vertical Asymptote:_____ Zeroes:_____

Horizontal Asymptote:_____ y-int:_____

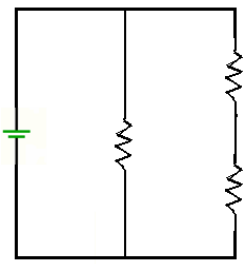
Domain: _____ Holes: _____



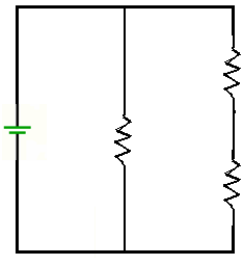
27. Ansley takes twice as many hours to clean the garage than her sister Betsy. When they both work together, they can clean the garage in 6 hours. How many hours would it take Betsy to clean the garage alone?

28. Bobby can wash his mom's car in 6 hours. If his sister Betty helps him, they can complete the job in 2 hours. How long would it take Betty to wash her mom's car alone?

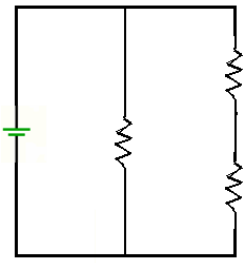
29. Assume that the second series resistor is 2 ohms more than the 1st series resistor, the single resistor in parallel is 1 ohm less than the 1st series resistor, and the total resistance is 3 ohm.
Write and solve an equation to model this situation. What is the resistance of the each of the resistors?



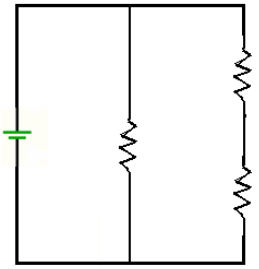
30. Assume that for the two resistors in series, the second has a resistance that is twice the resistance of the first one in the series. The single resistor has a resistance that is 1 ohm more than the resistance of the first resistor in series. The total resistance of the circuit is 2 Ω. Write and solve an equation to model this situation. What is the resistance of the each of the resistors?



31. Assume that for the two resistors in series, the second has a resistance that is four times the resistance of the first one in the series. The single resistor has a resistance that is 1 ohm more than the resistance of the first resistor in series. The total resistance of the circuit is 4 Ω. Write and solve an equation to model this situation. What is the resistance of the each of the resistors?



32. Assume that for the two resistors in series, the second has a resistance that is 1 ohm more than twice the resistance of the first one in the series. The single resistor has a resistance that is 4 ohms more than twice the resistance of the first resistor in series. The total resistance of the circuit is 5 Ω. Write and solve an equation to model this situation. What is the resistance of the each of the resistors?



33. For the function $f(x)=\dfrac{x^2-x-2}{x^2-1}$ state the following:

Vertical Asymptote:_____ Zeroes:_____

Horizontal Asymptote:_____ y-int:_____

Domain: _____ Holes: _____

34. For the function $f(x)=\frac{x^2+3x-18}{x+3}$ state the following:

Vertical Asymptote:_____ Zeroes:_____

Horizontal Asymptote:_____ y-int:_____

Domain: _____ Holes: _____

Slant Asymptote: _____

35. For the function $f(x)=\frac{10x^2-x-2}{x+1}$ state the following:

Vertical Asymptote:_____ Zeroes:_____

Horizontal Asymptote:_____ y-int:_____

Domain: _____ Holes: _____

Slant Asymptote: _____

36. For the function $f(x)=\frac{12x^2+11x+2}{3x^2-x-4}$ state the following:

Vertical Asymptote:_____ Zeroes:_____

Horizontal Asymptote:_____ y-int:_____

Domain: _____ Holes: _____

Slant Asymptote: _____