Algebra 2C Name _____

Rational Functions Test Review

For 1-9, Simplify. Final answer should not have negative exponents or have any answers with decimals in it.

1. $\frac{x(x+3)(x-5)}{2x(x-5)}$

2. $\frac{6a^5b^7}{2a^2b^3}$

3. $\frac{18x^3y^4z}{27x^5y^2z^3}$

4. $\frac{x^{-1}y^3}{5x^8y}$

5. $\frac{24(x^4y)^2}{18x^0y^{-4}}$

6. $(7xy^{-3})(-2x^7y^6)$

7. $\frac{x^2-9}{2x+10} * \frac{x+5}{x-3}$

8. $\frac{x^2-16}{2x^2} * \frac{x}{x^2-x-12}$

9. $\frac{x^2-1}{x^2+4x+3} \div \frac{x^2-2x+1}{x^2+7x+12}$

10. $\frac{x-6}{x+5} - \frac{8x+7}{x+5}$

11. $\frac{1}{x^2+6x+8} + \frac{1}{x^2-6x-16}$

12. $\frac{7}{x-9} - \frac{2x-6}{x^2-13x+36}$

Solve. Be sure to check for extraneous solutions.

13. $\frac{1}{2x}+\frac{1}{5}=\frac{1}{x}$

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

15. $\frac{-5}{x}-\frac{6}{x+4}=3$

16. $\frac{3}{x+1}+\frac{6}{x-2}=\frac{-18}{(x+1)(x-2)}$

18. F varies directly with M. M = 3 when F = 12. Find F when M =17

19. G is inversely proportional to Q. Q = 8 when G = 0.5. Find G when Q = 4

20. There are 522 calories in a 6 piece Chicken McNugget. Shane ate 14 Chicken McNuggets after football practice yesterday. If the number of calories varies directly with the Chicken McNuggets, how many calories did Shane consume?

21. Decide if each table shows direct or inverse variation. Find the "k" value for each table and then write an equation.

X	Y
1	4
2	2
3	4/3
4	1

k =

equation:

X	Y
0	0
1	9
2	18
3	27
4	36

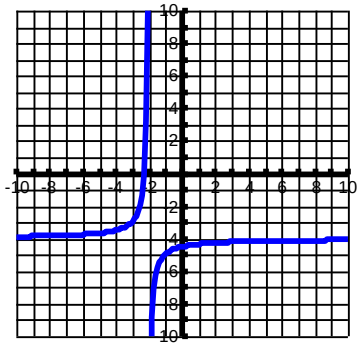
k =

equation:

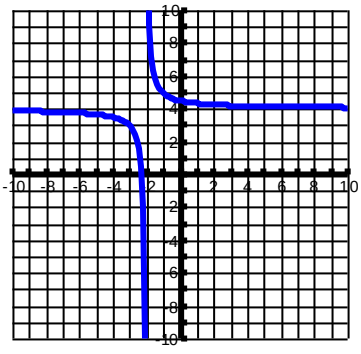
22. Based on what you have learned about the "a" "h" and "k" values, match the following functions with their graphs.

$f(x)=\frac{1}{x+2}-4$ _____ $f(x)=\frac{1}{x+2}+4$ _____ $f(x)=\frac{-1}{x-2}+4$ _____ $f(x)=\frac{-1}{x+2}-4$ _____

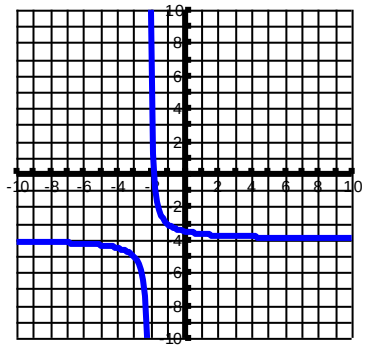
A.



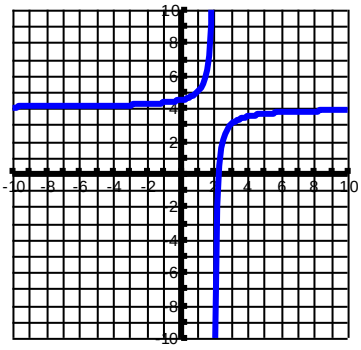
B.



C.



D.



Make a sketch of each rational graph. Draw in asymptotes and label them clearly with equations.

23. $f(x)=\frac{2}{x-3}-7$

24. $f(x)=\frac{2}{x}+6$

25. $f(x)=\frac{-1}{x+7}$

26. $f(x)=\frac{4}{10+x}+60$

Make a sketch of each rational graph. Draw in asymptotes and label clearly. Be sure holes are clearly holes. ☺

27. $f(x)=\frac{x-1}{x^2+2x-3}$

28. $f(x)=\frac{x+3}{x^2+4x+3}$

29. $f(x)=\frac{x+2}{x^2-6x-16}$