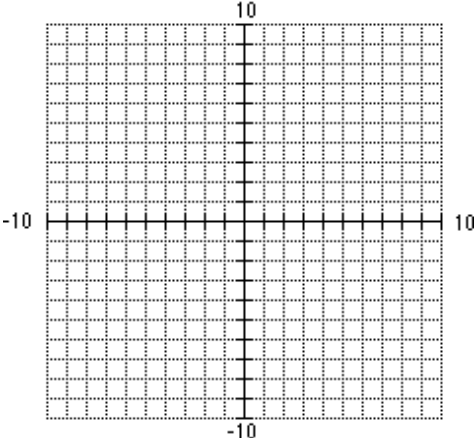
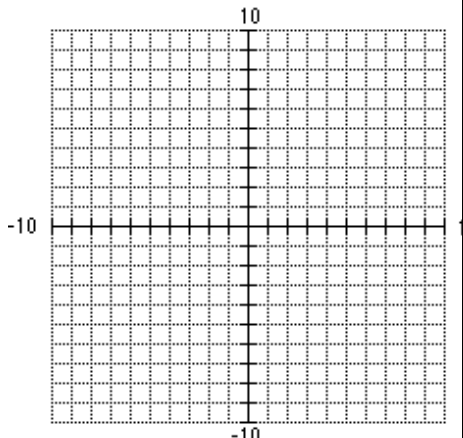


Learning Target 1: I CAN graph a rational function, identify its transformations, components (domain, range, zeros, intercepts), and its restrictions (vertical, horizontal, and oblique asymptotes, and points of discontinuity).

1-2 : Graph each of the following functions and provide the indicated information below. Plot at least two points on each branch of the graph, and sketch asymptotes as dashed lines. Use interval notation for the domain and range.

<p>1. $f(x) = \frac{2x+5}{x-1}$</p> 	<p>2. $f(x) = \frac{2}{x-3} + 4$</p> 		
vertical asymptote(s):	horizontal asymptote:	vertical asymptote(s):	horizontal asymptote:
domain:	range:	domain:	range:

3-6 : Write the equation of the function when $f(x) = \frac{2}{x}$ is translated and ...

3. ...has horizontal asymptote $y = 3$ and vertical asymptote $x = -5$. $f(x) =$ _____

4. ...has horizontal asymptote $y = -6$ and vertical asymptote $x = -3$. $f(x) =$ _____

5. ...shifts the graph up 8 and right 2. $f(x) =$ _____

6. ...reflects the graph over the x-axis. $f(x) =$ _____

Learning Target 2: I CAN model and solve real world problems by using direct, inverse, and joint variation or a combination of direct and inverse variation.

7-9 : The Volume V of wood in a tree varies jointly as the height h and the square of the girth g . If the volume of a tree is 144 cubic meters when the height is 20 meters and the girth is 1.5 meters, what is the height of a tree when the volume is 1000 cubic meters and a girth of 2 meters? **SHOW YOUR WORK!**

7. Find the value of the constant of variation (k). _____

8. Write the equation that relates the Volume to the height and girth. _____

9. Find the height of a tree if the volume is 1000 m^3 and has a girth of 1.5 m. _____

10-11 : *SHOW YOUR WORK to determine if the given problem represents direct, inverse, joint or no variation.*

10. The equation $\frac{y}{x} = \frac{8}{11}$ represents _____ variation?

11. The table represents _____ variation.

x	y
3	2
6	4
10	20/3
12	8

12. Suppose y varies jointly as x and z . If $y = 48$ when $x = 2$ and $z = 8$, find y when $x = 8$ and $z = 4$.

13. The volume of a pyramid V , varies jointly as its height h and the area of its base A_b . Write the equation that represents this variation.

Learning Target 3: I CAN add, subtract, multiply, divide, and simplify rational expressions.

14-19: Simplify each expression completely. Neatly **SHOW YOUR WORK** and then circle your answer.

14.
$$\frac{\frac{x^2 - 9x - 22}{x^2 + 5x - 24}}{\frac{x+2}{x-3}}$$

15.
$$\frac{x+7}{2-x} - \frac{x-5}{x-2}$$

16.
$$\frac{10}{x^2-9} + \frac{5}{x+3}$$

17.
$$\frac{x^2+4x-5}{x^2+x-2} \cdot \frac{3x+6}{x+5}$$

18.
$$\frac{x-4y}{10} \div \frac{x^2-16y^2}{12}$$

19.
$$\frac{x-2}{3x+15} - \frac{x+4}{x+5}$$

Learning Target 4: I can solve equations containing rational expressions algebraically and check their solutions graphically.

20-23: Solve each of the following equations. Show all work, circle your answers and be sure to state restricted values.

20. $\frac{1}{n} = \frac{1}{4n^2} + \frac{n+3}{4n^2}$

21. $\frac{2x-4}{x-2} = \frac{4}{x-4}$

22. $\frac{1}{x-2} + \frac{1}{x+3} = \frac{5}{x^2+x-6}$

23. $\frac{r+1}{r} + \frac{r-4}{2r} = \frac{3r^2-2r-5}{5r}$