

I. Find the LCD of each rational equation and build up each fraction so that they all have the same denominator.

1. $\frac{s}{s+2} + s = \frac{5s+8}{s+2}$

2. $\frac{y}{y+2} + \frac{7}{y-5} = \frac{14}{y^2-3y-10}$

3. $\frac{p+10}{p^2-p} = \frac{4}{p}$

LCD: _____

LCD: _____

LCD: _____

II. Solve each of the following rational equations. Make sure to find any excluded values.

4. $\frac{6}{x-1} = \frac{4}{x-2} + \frac{2}{x+1}$

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

LCD: _____ EV: _____

LCD: _____ EV: _____

Solution: _____

Solution: _____

6. $\frac{1}{2h} + \frac{5}{h} = \frac{3}{h-1}$

7. $\frac{4}{w-2} = \frac{-1}{w+3}$

LCD: _____ EV: _____

LCD: _____ EV: _____

Solution: _____

Solution: _____

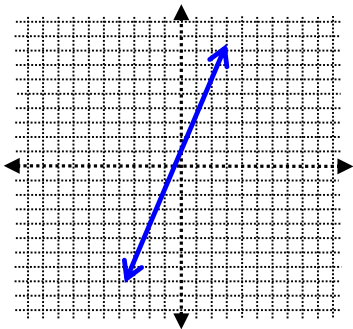
III. Find the inverse of the following functions.

8. $f(x) = -5x - 11$

9. $f(x) = (x - 2)^2$

10. $f(x) = \frac{1}{3}x + 7$

11.

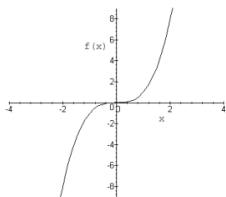


12. $f(x) = \sqrt[3]{x-7} + 2$

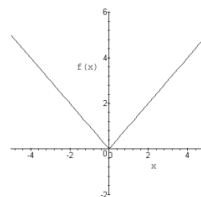
13. $f(x) = (x - 2)^5 - 1$

IV. Determine if the following functions are even, odd or neither. Explain.

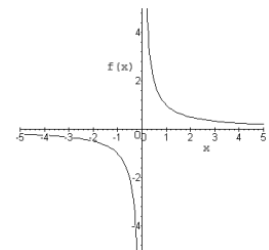
15.



16.



17.



18. $f(x) = 4x - 9$

19. $f(x) = 3x^7 - 2x^5 + 3x^3$

20. $f(x) = 4x^6 - 7x^4 + 9$

V. Direct, Inverse and Joint Variation

21. If $x=5$ when $y=20$, find y when $x=10$ if x and y vary directly.

22. Suppose y varies inversely with the square of x , and $y=50$ when $x=4$. Find y when $x=5$.

23. Suppose that y varies directly with x and inversely with the square of z . If $x=48$ when $y=8$ and $z=3$. Find the constant of variation(k) and x when $y=12$ and $z=2$.

24. When a person swims underwater, the pressure in his or her ears varies directly with the depth at which he or she is swimming. At 10 feet, the pressure is about 4.3 pounds per square inch. Find the pressure if the depth is 60 feet.

25. When air is pumped into a tire, the pressure required varies inversely as the volume of the air. If the pressure is 30 lb/in^2 when the volume is 140 in^3 , find the pressure when the volume is 100 in^3 .

26. Determine if the following tables are direct variation, inverse variation or neither. Then determine the constant of variation.

a.

x	y
-4	6
-2	12
8	-3

b. $(6, 4.5)(8,6)(10,7.5)$

c.

x	y
1	3
4	9
10	21

27. If the point $(12, 4)$ lies on the graph of a direct variation, what is the constant of variation?

28. If y is inversely proportional to x and $y=7$ when $x=9$, find x when $y=14$.

29. Which set of ordered pairs satisfies an inverse variation?

a. $(6,3)$ and $(8,4)$

b. $(2,3)$ and $(4,5)$

c. $(4, -2)$ and $(-5, 10)$

d. $(2,6)$ and $(-3, -4)$

30. The time required to complete a job varies inversely as the number of people working. It took 4 hours for 7 electricians to wire a building. How long would it have taken 3 electricians to have done the job?