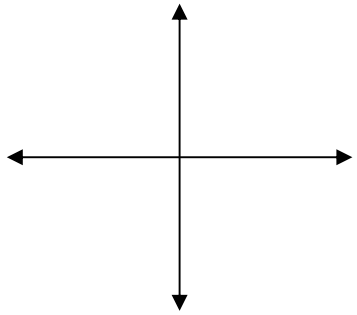
161 Practice Test 2 **Name**_____

1. Draw a picture of a line with slope –2 through the origin. Explain in clear English why the slope of your line is –2.



2. The equation for the *x*-axis is _____ and the equation of the *y*-axis is _____

3. If the slope of a line is –1 and (2,3) is on the graph of the line, then (4,___) is also on the graph.

4. The slope of a horizontal line is _____, because as x increases by 1 unit y remains constant. The slope of a vertical line is _____, because _____.

5. Find the equation of the line with slope 4 through the point (1,0)

6. Find the equation of the line that passes through the points (2,3) and (4,1)

Let $f(x)=\frac{1}{x-1}, g(x)=x^2-1$

7. The domain of f is _____ and the domain of g is _____

8. Using plain English, describe what each function does without using the word x.

9. $f(3)=$ ____, $f(-3)=$ ____ , $g(3)=$ ____, $g(-3)=$ ____

10. $(f+g)(3)=$ _____, $(f-g)(-3)=$ _____

11. Is f even, odd or neither? _____ Is g even, odd or neither? _____

12. Find $\frac{g}{f}(x)$

13. What is the domain of $\frac{g}{f}$?

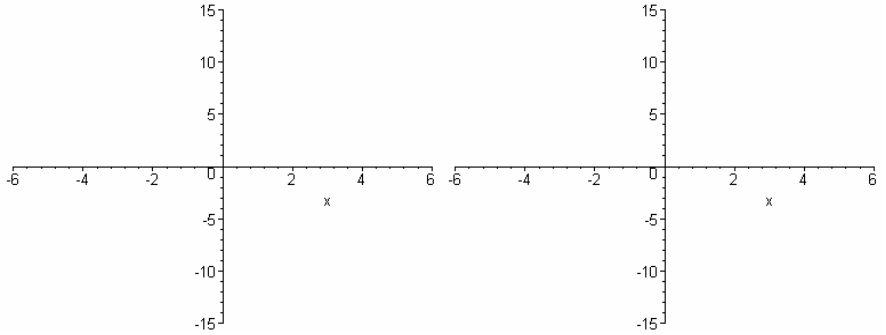
14. Find $f \circ g(x)$

15. Find $g \circ f(x)$

16. In general, if for each domain element x: $f(-x) = f(x)$ the function is called _____ whereas if $f(-x) = -f(x)$ the function is _____.

17. And even function is symmetric with respect to _____, and an odd function is symmetric with respect to _____.

18. Draw a picture of an even function on the left and an odd function on the right.



19. Compared to the graph of $y = \sqrt{x}$, the graph of $y = \sqrt{x+3} - 2$ is shifted how?

Let the function F be given by the following ordered pairs

$$\left(-\tfrac{1}{2},-1\right),\left(-\tfrac{1}{3},-\tfrac{\sqrt{3}}{2}\right),\left(-\tfrac{1}{4},-\tfrac{\sqrt{2}}{2}\right),\left(-\tfrac{1}{6},-\tfrac{1}{2}\right),(0,0),\left(\tfrac{1}{6},\tfrac{1}{2}\right),\left(\tfrac{1}{4},\tfrac{\sqrt{2}}{2}\right),\left(\tfrac{1}{3},\tfrac{\sqrt{3}}{2}\right),\left(\tfrac{1}{2},1\right)$$

20. What is the domain of F?

21. What is the range of F?

22. Is F a one to one function? _____

23. Is F even, odd, or neither? _____

24. Find the vertex of the quadratic function $f(x) = (x-3)^2 - 4$. The minimum value of f is ____ when x = ____

25. Find the vertex of the quadratic function $g(x) = x^2 + 2x - 15$. The minimum value of g is ____ when x = ____