Pre-Calculus CP Summer Work Name_____

Due: Monday, August 25, 2025

Answer each and show the work. Work should be easy to read and answers should be easy to locate. No Calculator.

Linear Equations

Write the following equation in point slope form $(y - y_1) = m (x - x_1)$

1. The line containing the point (4, -7) and having slope of $-\frac{2}{5}$.

2. The line containing the point (-13, 5) and parallel to $4x + 2y = -7$.

3. The line containing the point (0, -2) and perpendicular to $x - 4y = 3$.

4. The line containing the point (2, 9) and having slope of 0.

Composition of Functions

Given f(x) = 4x -1 and g(x) = x + 6, find the following compositions.

5. g(f(x))

6. f(g(x))

7. f(f(x))

Basic Factoring

Factor each of the following as completely as possible.

8. $9x^3y - 25xy^3$

9. $x^3 + 7x^2 - 18x$

Function Analysis

Determine the domain and zeros of each of the following functions.

10. p(x) = (x+ 5)(x - 8)

11. c(x) = $\frac{-6}{2x-3}$

12. f(x) = $\frac{x+1}{x+2}$

13. p(x) = $\frac{6x^2-7x-3}{2}$

14. q(x) = $\frac{x-5}{(x+2)(x-5)}$

Mixed Review Problems

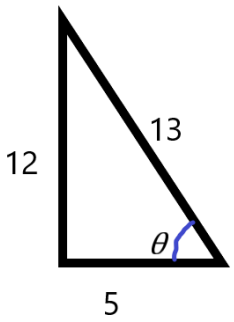
15. Find all roots of $p(x) = 3x^3 + x^2 + 12x + 4$

16. Determine the inverse (f^{-1}) for $f(x) = \sqrt[3]{x-3}$

17. Solve $\sqrt{4y-9} - \sqrt{5y-4} = 1$

18. Simplify $\dfrac{y - \dfrac{1}{y}}{y + \dfrac{1}{y}}$

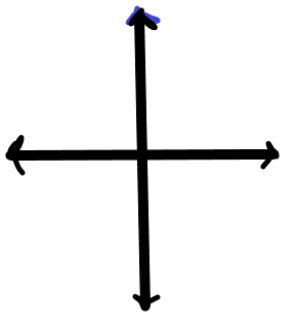
19. Find sin θ, cos θ and tan θ for the triangle.



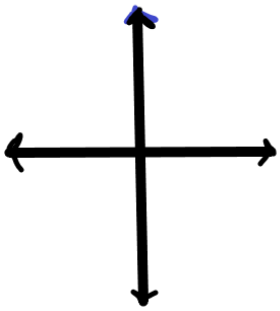
Graphs

Graph each function and clearly indicate the units on the axes provided.

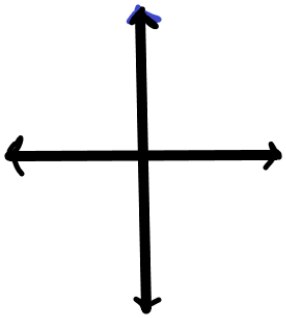
20. f(x) = x



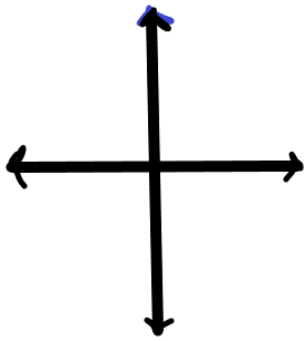
21. $f(x) = x^2$



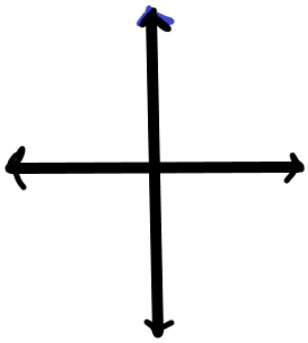
22. $f(x) = x^3$



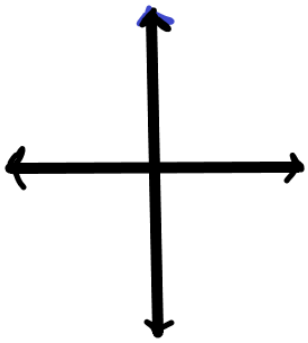
23. f(x) = | x|



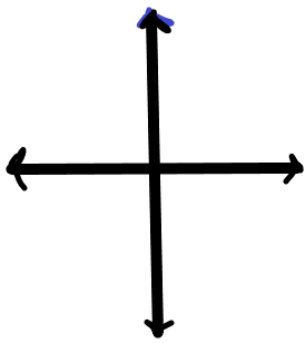
24. $f(x) = \frac{1}{x}$



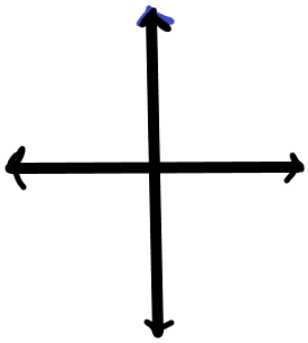
25. $f(x) = \frac{1}{x^2}$



26. $f(x) = \sqrt{x}$



27. $f(x) = \sqrt[3]{x}$



28. X = -3