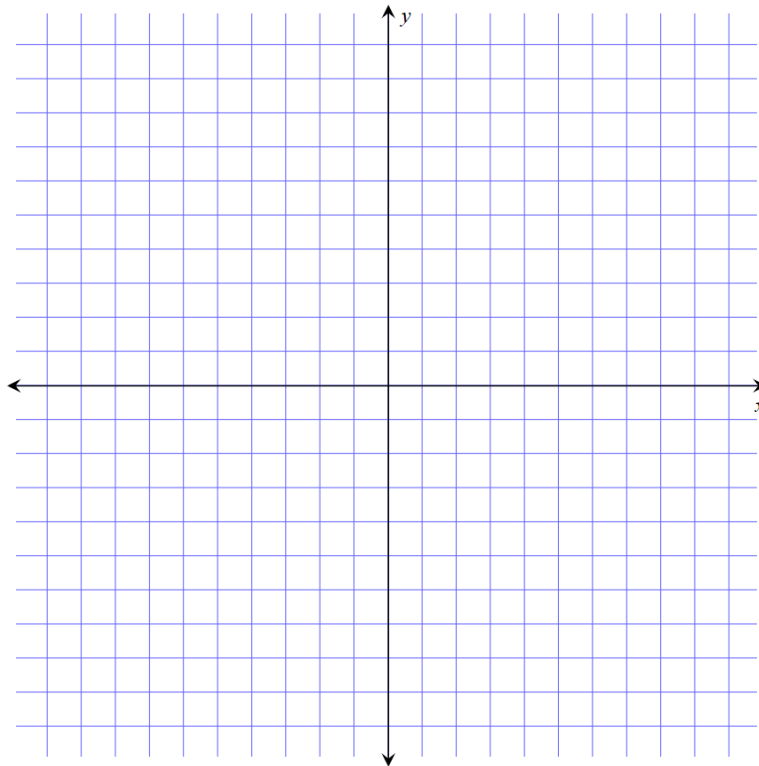


- {10 pts.} 1. Find the center and radius of the circle whose equation is

$$x^2 - 10x + y^2 + 2y = -10.$$

Sketch the graph of this circle and label at least four points on the circle and the center.
What is the area of this circle?



{15 pts.} 2. Find and simplify the difference quotient of $f(x) = \frac{3}{x+4}$.

{15 pts.} 3. Find all x for which $\frac{1}{x+5} \geq 3$. Write your answer in interval notation.

{15 pts.} 4. Let $f(x) = 5x - x^2$.

(a) Evaluate $f(4)$ and $f\left(\frac{3}{5}\right)$.

(b) Find and simplify $f(x - 5)$.

(c) Find all x for which $f(x) = 4$.

(d) Find the domain of f .

{10 pts.} 5. Solve the inequality $|5 - 2x| < 5$. Write your answer in interval notation.

{10 pts.} 6. Let $g(x) = \sqrt{3x - 18}$.

(a) Find and simplify $g(x^2 + 5x - 2)$.

(b) Find the domain of g .

{25 pts.} 7. Let $f(x) = \frac{x^2 - 9}{2x - 5}$.

(a) Evaluate $f(-2)$ and $f\left(\frac{2}{3}\right)$.

(b) Find and simplify $f\left(\frac{1}{x+1}\right)$.

(c) Find all intercepts of the graph of $y = f(x)$.

(d) Find the domain of f .