1. Find the slope of the line through the points (1, 5) and (3, −4).

   Answer. $\frac{-9}{2}$

2. Give an equation for a line parallel to $y = -\frac{1}{2}x - 1$ through the point (0, −3)

   Answer. $y = -\frac{1}{2}x - 3$  

3. Give an equation for a line perpendicular to $y = -\frac{1}{2}x - 1$ through the point (1, −1) (note it is a different point)

   Answer. $y + 1 = 2(x - 1)$

4. Find the domain of $f(x) = (12x^2 - 13)\sqrt{x - 10}$

   Answer. $[10, \infty)$ OR $\{x \in \mathbb{R} | x \geq 10\}$

5. Using $g(x) = x^2 + 3x$, find $g(x + h) - g(x)$

   Answer. $\frac{(x + h)^2 + 3(x + h) - (x^2 + 3x)}{h}$

6. If $g(2) = 3$, $g(3) = -4$, $g(4) = 3$, is $g^{-1}(x)$ a function?

   Answer. No

7. Given $p(x) = 3x^2 + 1$ and $q(x) = 1/x$, find $(p \circ q)(x)$

   Answer. $\frac{3}{x^2} + 1$

8. Find the limit (if it exists) $\lim_{x \to -2} \frac{4x - 5}{3 - x}$

   Answer. $-\frac{12}{5}$

9. Find the limit (if it exists) $\lim_{x \to 1} \frac{x^2 + 3x - 4}{x - 1}$

   Answer. 5

10. Sketch a curve where $\lim_{x \to 3} f(x) = 0$ and $f(3) = 1$
11. Find any vertical asymptotes of \( g(x) = \frac{x+3}{x^2-9} \)

   \textit{Answer.} \( x = 3 \)

12. Find any horizontal asymptotes of \( g(x) = \frac{x+3}{x^2-9} \)

   \textit{Answer.} \( y = 0 \)