1. Find the domain of the function $f(x) = \sqrt{\ln(x) - 5}$

2. Suppose that the graph of f is given. Describe how the graph of the function y=f(x+5)+5 can be obtained from the graph of f.

3. The graph of a function f is shown, find and explain: $\lim\limits_{x \to 3} f(x)$.
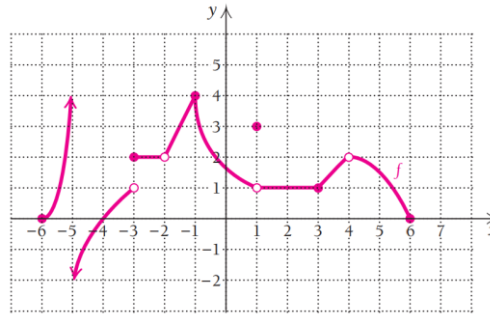
Bài4 . A table of values for f,g,f ',g' is given

x	0	-1	2
$f(x)$	1	-2	-4
$f'(x)$	2	-1	2
$g(x)$	1	2	-1
$g'(x)$	-2	-1	-2

Find h'(1) if h(x)=f(g(x))

Bài 5. Find y''(x) by implicit differentiation if $x^3 + xy^2 = 2x + 2$

Bài 6. Find the linear approximation for $f(x) = \sqrt{2x + 1}$ at $x=4$.

Bài 7. Use Newton's Method with initial approximation x₁=1 to find x₄, the third approximation to the root of the equation x³+3x=1. What is the result?

Bài 8. Find the general anti-derivative of the function f(x)= cotg(x)

Bài 9. Suppose f(1)=4 and $1 \le f'(x) \le 8$ for all x. How large can $f(5)$ possible be?

Bài 10. Find two positive numbers whose product is 4 and whose sum is a minimum.

Bai11. A particle moves along a line so that its velocity at time t is $v(t) = 8t^2 - 20t + 3$ (measured in meters per second). Find the displacement of the particle during the time từ giây thứ 1đến giây thứ 10?

Bài 12. Suppose $g(x) = \int_x^{x+2x^2} \sqrt{1+t}\,dt$. What is $g'(x)$?

Bài 13. Find the average value of the function $f(x) = -3x + 2x^2$ on the interval [1,3].

Bài 14. Find all points of intersection of the plane 3x+5y-2z + 1=0 and the line (x,y,z)=(-1,2,3)+t(-3,5,2)

Bài 15. Find the equation of the plane through P(1,2,1), Q(5,3,1) and R(2,-3,1)

Bài 16. If u=(2,-1,1) and v=(-1,x,2) are at an angle of $\frac{\pi}{4}$, then x is

Bài 17. Find the distance between u=(-1,2,1) and v=(2,-2,3).

Bài 18. Find the angle between u = (-1,1,5) and v=(3,-2,1).

Bài 19. Find a, b and c so that the system $\begin{cases} x + ay + z = 3 \\ bx + 5y - 3z = 23 \\ x - 7y + cz = 9 \end{cases}$ has the solution

(1,2,-3)

Bài 20. Compute the rank of the matrix $\begin{pmatrix} 1 & 2 & 1 & -3 \\ -2 & 1 & 1 & 4 \\ 5 & 1 & 1 & 9 \end{pmatrix}$

Bài 21. Let $A = \begin{pmatrix} 1 & 3 & 0 & 0 \\ 3 & 3 & 1 & 1 \\ 7 & 0 & 0 & 0 \\ 0 & 0 & 3 & 6 \end{pmatrix}$.

If A is the augmented matrix of a system of linear equations. Solve the system.

Bài 22. The (1, 2)-cofactor of the matrix $\begin{bmatrix} 1 & 3 & -2 \\ 4 & 5 & -1 \\ 7 & 8 & 1 \end{bmatrix}$ is:

Bài 23. For what values of a is the set of vectors
S={(4,-2,a),(1,2,-7),(9,1,3)} linearly independent?

Bài 24. Let $T: R^2 \to R^2$ be a linear transformation, and assume that
$T(1,2) = (-1,1)$ and $T(1,-1) = (2,3)$. Compute $T(3,3)$