**Part A - The use of a calculator is not allowed.**

Find the derivative of each of the following functions.

1. y = 6x5 – x + 10
2. 
3. 
4. 
5. f (x ) = (3x – 2)5(x2 – 1)
6. 
7. y = 10 cot(2x – 1)
8. y = 3x sec(3x)
9. y = 10 cos[sin(x2 – 4)]
10. y = 8 cos–1(2x )
11. y = 3e5 +4xex
12. y = ln(x2 +3)

**Part B—Calculators are allowed.**

1. Find , if x2 + y3 =10 – 5xy.
2. The graph of a function f on [1, 5] is shown in Figure 6.9–1. Find the approximate value of f '(4).
3. Let f be a continuous and differentiable function. Selected values of f are shown below. Find the approximate value of f ' at x =2.





1. If f (x) = x5 + 3x – 8, find ( f –1)'(–8).
2. Write an equation of the tangent to the curve y = ln x at x = e.
3. If y = 2x sin x, find  at x = .
4. If the function f (x)=(x – 1)2/3 + 2, find all points where f is not differentiable.
5. Write an equation of the normal line to the curve x cos y = 1 at (2, ).
6. 
7. 
8. 
9. 
10. 

###  **(Calculator) indicates that calculators are permitted.**

1. Find .
2. If f (x)= cos2(π – x ), find f '(0).
3. Find .
4. (Calculator) Let f be a continuous and differentiable function. Selected values of f are shown below. Find the approximate value of f ' at x = 2.



1. (Calculator) If  determine if f (x) is continuous at (x = 3). Explain why or why not?