Question no 9

The command that was used to calculate the derivative is:

- from sympy import symbols, diff, sqrt, exp
- t = symbols('t')
- f = ((sqrt(t) * (3*t + t*5 - 10)) + (t3 - exp(t))) / t*2
- df_dt = diff(f, t)
- print("The derivative of the function f(t) is:")
- print(df_dt)

Question no 10

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(work3.12) muhammad-faseeh-zafar@Latitude-E7250:~/Desktop$ /home/muhammad-faseeh-zafar/Desktop/work3.12/bin/python "
/home/muhammad-faseeh-zafar/Desktop/maths 2/q10.py"
First derivative of f(x):
15*x**2 + 8*exp(2*x) - 3*cos(3*x) - 1/x

Second derivative of f(x):
30*x + 16*exp(2*x) + 9*sin(3*x) + x**(-2)

Third derivative of f(x):
32*exp(2*x) + 27*cos(3*x) + 30 - 2/x**3

Fourth derivative of f(x):
64*exp(2*x) - 81*sin(3*x) + 6/x**4
```

The command that was used to calculate the derivative is:

- from sympy import symbols, diff, exp, sin, ln
- x = symbols('x')
- f = 4 * exp(2*x) - sin(3*x) + 5 * x**3 - ln(2*x)

- d1 = diff(f, x)
- d2 = diff(f, x, 2)
- d3 = diff(f, x, 3)
- d4 = diff(f, x, 4)

- print("First derivative of f(x):")
- print(d1)
- print("\nSecond derivative of f(x):")
- print(d2)
- print("\nThird derivative of f(x):")
- print(d3)
- print("\nFourth derivative of f(x):")
- print(d4)