Q.1) Solve (1 mark each)

A) Find n^{th} derivative of $\frac{x^4}{(x-1)(x-2)}$

B) Find n^{th} derivative of $\tan^{-1}(\frac{2x}{1-x^2})$

C) Center of the arc of the circle in a given coordinate system is (100,100,100). Origin is shifted to the point (-10,-5,2). Rotation is carried about y-axis through an angle of 30^0. Find the Centre of the arc of the circle in new coordinate system.

Q.2) Fill in the blanks (0.5)

A) Given a square whose coordinates are given by A ≡ (2,1) B ≡ (3,1) C ≡ (3,4) D ≡ (2,4).Translate square by 7 units right & 6 units down. Find new coordinates.

B) Given a line segment starting at a point (0,0) ending point is (8,1). Rotate line by 45 degree & find new coordinate.

C) n^{th} Derivative of $y = \sin^3(x)$ is.....

D) n^{th} Derivative of $y = e^{2x}\cos\ (3x + 4)$