Doon Public School

A Senior Secondary School
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Assignment 5   **Subject: Mathematics**   **Class: XII**

Date: 9-10-2018

Find the general solution of the following differential equations:

1. $\dfrac{dy}{dx} = \dfrac{1 - \cos x}{1 + \cos x}$

2. $y \log y\, dx - x\, dy = 0$

Find the particular solution of the following differential equations:

3. $x(x^2 - 1)dy = dx;\ y = 0, x = 2$

4. $dy = y \tan x\, dx;\ y = 1, x = 0$

5. $(1 + e^{\frac{x}{y}})dx + e^{\frac{x}{y}}(1 - \dfrac{x}{y})dy = 0$

6.   Show that the family of curves for which the slope of the tangent at any point (x, y) on it is $\dfrac{x^2 + y^2}{2xy}$, is given by $x^2 - y^2 = cx$.

7.   Form the differential equation of the family of parabolas having vertex at origin and axis along positive y-axis.

8.   Form the differential equation of the family of circles having centre on y-axis and radius 3 units.