**Expert ID/Name: Nstructive**

**Date: 05-Nov-2020**

**C:\Users\chari\Desktop\34.PNG**

**Answer:**

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| **Section 1:** Algorithm/Theorem Reminder / A tip for solving these type of questions |

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| Tip:   1. Equation of the family of circles in first quadrant and touching the coordinate axes is , where a is the radius of the family of the circles. 2. Differentiate with respect to “x” on both sides. 3. If an equation has “n” number of arbitrary constants then we need to do differentiation in “n” number of times. |

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| **Section 2:** Step-by-step answer |

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| Given: Equation of the family of circles in first quadrant and touching the coordinate axes.  To find\determine\prove: Form the differential equation of Equation of the family of circles in first quadrant and touching the coordinate axes.  Explanation: -  Step1:   |  |  | | --- | --- | | Instruction | Recall the Equation of the family of circles in first quadrant and touching the coordinate axes. | | Calculation | C:\Users\chari\Desktop\34a.PNG  Equation of the family of circles in first quadrant and touching the coordinate axes is , where a is the radius of the family of the circles. |   Step 2:   |  |  | | --- | --- | | Instruction | Differentiate the differential equation with respect to “ ”. | | Calculation |  |   Step 3:   |  |  | | --- | --- | | Instruction | Take and then make subject . | | Calculation |  |   Step 4:   |  |  | | --- | --- | | Instruction | Substitute  in . | | Calculation | (Since, ) | |
| Conclusion:-  The differential equation of  is .  Hence verified. |