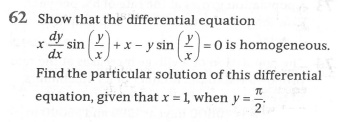
**Expert ID/Name: Nstructive**

**Date:**

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**Answer:**

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| **Section 1:** Algorithm/Theorem Reminder / A tip for solving these type of questions |
| **Tips:**   1. **If** is a differential equation and then is a homogeneous differential equation. 2. Recall the method of solving thehomogeneous differential equation ,hence find its general solution. |

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| **Section 2:** Step-by-step answer |
| Given: Differential equation is ,  To prove/find:  is a homogeneous differential equation and to find particular solution of given that .  Step1:   |  |  | | --- | --- | | Instruction: | Put in and then verify. | | Calculation: | Hence, which is a homogeneous differential equation. |   Step2:   |  |  | | --- | --- | | Instruction | Make subject asin | | Calculation |  |   Step 3:   |  |  | | --- | --- | | Instruction | Put and differentiate with respect to on both sides and then substitute the values in | | Calculation |  |   Step 4:   |  |  | | --- | --- | | Instruction | Apply the integration on both sides. | | Calculation | Calculation Now, substitute  in  since    Now substitute in    Hence, required particular solution is. | |

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| **Section 3:** |
| Conclusion: Particular solution of  is  Hence, proved and verified. |