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| Test 2Dusty Wilson Math 151 No work = no credit  No Symbolic Calculators | **Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *We are usually convinced more easily by reasons we have found ourselves than by those which have occurred to others.*  Blaise Pascal (1623 - 1662)  French mathematician |

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| Warm-ups (1 pt each): | =\_\_\_\_\_ | =\_\_\_\_\_ | =\_\_\_\_\_ |

(1 pt) According to Pascal (see above), what kind of logic do we find most compelling?

(12 pts) Differentiate . Express your answer as an equation.

(10 pts) Find . Simplification is optional.

(10 pts) If  find . Simplification is optional.

(10 pts) If  find . Simplification is optional.

(10 pts) Find the equation of the second derivative of . Simplification is optional.

(10 pts) Differentiate . Express  in terms of *x*. Simplification is optional.

(10 pts) If , find . Give your answer as an equation. Simplification is optional.

(10 pts) Find the equation of the tangent line to  at the point .

(10 pts) Find and evaluate the following given the table below. Circle your answers.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 1. when        1. when | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | **1** | **2** | **3** | **4** | **5** | |  | 5 | 1 | 3 | 4 | 2 | |  | 5 | 2 | 4 | 3 | 1 | |  | 4 | 1 | 2 | 3 | 5 | |  | 1 | 5 | 4 | 2 | 3 | |

(10 pts) Differentiate  with respect to *x*. Simplification is optional.