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| Assessment 4Dusty Wilson Math 163 No work = no credit | **Name**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *I have hardly ever known a mathematician*  *who was capable of reasoning.* Plato 427 – 347 BC (Greek philosopher) |

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

(1 pt) Based upon Plato’s experience (above), how good were mathematicians at thinking/reasoning? Answer using complete English sentences.

(5 pts) Find the equation of the tangent line to the cycloid  and  at the point where .

(5 pts) Use the calculus of parametric curves to derive the circumference of a circle with radius one. To do this, first parametrize the unit circle making sure to include limits of integration. Then find the length of the curve.

(5 pts) If , find the unit tangent vector at the point 