**Calculus 30**

**Chapter 7 – Differentiating Transcendental Functions**

**Practice Assessment**

PART A: Logarithmic and Exponential Functions

1. Write the following as a single logarithm.



1. Solve the following equations. Answers must be in exact form, not decimals.



1. Find the derivative of the following functions:





 **e.** $f\left(x\right)=log\_{4}(5x+6)$

**f)**  $f\left(x\right)=e^{(7x-2)^{3}}$

1. An ingot of steel is removed from a furnace. Its surface temperature, T, in degress Celsius, t minutes after removal is . Find the rate of change of the temperature after 10 minutes. Interpret this result.

**PART B: Trigonometric Functions**

1. Solve the following Limits



6. Determine the derivative of the following. Answers **do not** need to be simplified.



7. Determine the slope of the tangent line to



8. Use implicit differentiation to solve for dy/dx if $x=3y+siny$.

9. Over the interval (0,π), determine the values of x for which the tangent line to the curve of $f\left(x\right)=sin2x-2sinx $is horizontal. It will be helpful to use the identity $cos2x=2cos^{2}x-1$ at some point in your solution.