Calculus Integral Quiz: Advanced Techniques

Name and period: _____

1. Evaluate the following integrals using an appropriate method. Show all work to receive credit.

   WORK ALL ANSWERS ON A SEPARATE SHEET OF PAPER

   (a)
   $$\int \frac{2e^{2x}}{(e^x+1)(e^x-1)}dx$$

   (b)
   $$\int \ln(x+\sqrt{x})dx$$

   (c)
   $$\int_3^4 \frac{20dx}{x^2(2+\frac{1}{x})(2-\frac{1}{x})(\frac{2}{x}-1)}\left(=\int_3^4 \frac{20xdx}{x\cdot x^2(2+\frac{1}{x})(2-\frac{1}{x})(\frac{2}{x}-1)}\right)^1$$

2. Solve 2 out of the 5 integrals below this line.

   (a)
   $$\int \frac{dx}{\sqrt{x-1}+\sqrt[3]{x-1}^3}$$

   (b)
   $$\int \sin^3(x)dx$$

   (c)
   $$\int \cos^4(2x)dx$$

   (d)
   $$\int \cos(4x)e^{2x+5}dx$$

   (e)
   $$\int \frac{x^3}{\sec(x)}dx$$

[1]Notice that for part 1(c) I have used the multiply/divide trick that was used on Exam 3. This is a common manipulation so keep this is mind whenever you reach a dead end.