

Instructions: You may not use notes, books or calculators on this assessment. No partial credit. **Don't simplify answers.** Successful completion of this assessment is 8 of 10 completely correct. Good Luck!

1. Find  $f'(x)$  if  $f(x) = 5x^3 + \sqrt[3]{x^4}$

2. Find  $\frac{dy}{dx}$  if  $y = \tan^2 x$

3. Find  $h'(t)$  for  $h(t) = \sin(e^t)$

4. Find  $\frac{dz}{dw}$  if  $z = (w^4 - \frac{1}{w^4})^{44}$

5. Find  $h'(t)$  for  $h(t) = \cos(t - \ln t)$ .

6. Find the derivative with respect to  $t$  of  $g(t) = (\sqrt{t} - \sqrt{2})^{12}$

7. Find  $\frac{dT}{dx}$  if  $T = \ln(0.7x)(1.07^x)$

8. Find  $r'(y)$  if  $r(y) = e^{4-2y}$

9. Find the derivative with respect to  $w$  of  $f(w) = \frac{w^2 - 1}{w} + e^{w+1} + (w - 1)^{e+1}$

10. Find  $\frac{dy}{dx}$  if  $y = \sqrt{b^2 - \frac{b^2}{a^2} x^2}$ , where  $a$  and  $b$  are constants.