DERIVATIVES COMPETENCY EXAM (PRACTICE TEST)

Directions:

- You have one hour to finish this exam.
- No calculators or notes are allowed.
- In order to pass this exam, you cannot miss more than two problems.
- There is no partial credit.

Name: **Date:**

Beginning of the exam

Find the derivatives of the following functions:

(1) $y = x^n$ where n is a nonzero constant.

(2) $y = \sin x$.

(3) $y = \tan x$.

(4) $y = \sec x$.

(5) $y = \arcsin x$.

(6) $y = \arctan x$.

(7) $y = e^x$.

(8) $y = \ln x$.

(9) $y = a^x$ where $a > 0$ is a constant.

(10) $y = 3x^3 + x^2 - 3$.

(11) $y = \sqrt[3]{x^2}$.

(12) $y = \frac{1}{\sqrt{x}}$.

(13) $y = x \csc x$.

(14) $y = \frac{x^2-1}{\cot x}$.

(15) $y = \arccos(x^2)$.

(16) $y = \cos(x^2 - 3)$.

(17) $y = \ln(\pi)$.

(18) $y = 6^{x^2+3}$.

(19) $y = \ln(\arcsin x)$.

(20) $y = \log_7(x^2 + 1)$.

End of the exam