Math 1151 Test 2 March, 16, 2001.

Professor Peter A. Rejto

Name (Print): _____ Student ID number: _____
Section number: _____ Name of TA: _____
Signature: _____

7 pages. Show all work. No work no credit. No books/notes. Calculators: Scientific calculator are allowed. However, graphing calculators are not allowed. More specificaly, calculators that display two or more lines are not allowed.

Name (Print): _____ Student ID number: _____

1. Let f be a given function and let p be a given number. Define that p is a period of f.

Name (Print): _____ Student ID number:_____

2. (25 pts.) Let α be an angle such that

$$\sin\alpha = \frac{1}{3} \text{ and } 0 \leq \alpha \leq \frac{\pi}{2},$$

and let β be an angle such that

$$\sin\beta = \frac{1}{4} \text{ and } 0 \leq \beta \leq \frac{\pi}{2}.$$

Find the exact value of $\sin(\alpha + \beta)$.

Name (Print): _____ Student ID number:_____

3. (25 pts.) Establish the identity,

$$\cos^2\theta(1+\tan^2\theta) = 1.$$

Name (Print): _____ Student ID number:_____

4. (25 pts.) Solve for $\sin\theta$,

$$\sin^2\theta - 3\sin\theta + 1 = 0.$$

Name (Print): _____ Student ID number:_____

5. (25 pts.) Let v be such that $-1 \leq v \leq 1$. Show that for each such v

$$\sin(\sin^{-1} v) = \sin(\frac{\pi}{2} - cos^{-1} v).$$

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6. (25 pts.) State and prove the law of cosines.