

YOUR NAME: \_\_\_\_\_

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Write the formula for  $\cos(\alpha - \beta)$ .

2. If  $\sin \alpha = -\frac{4}{5}$  and  $\alpha$  is in Quadrant III and  $\cos \beta = -\frac{12}{13}$  and  $\beta$  is in Quadrant II, compute  $\cos(\alpha - \beta)$ .

3. Write the de-squaring formulas for  $\sin^2 x$  and  $\cos^2 x$ .

4. Show that, for all  $x$ ,

$$\sin^2 x + \cos 2x = \cos^2 x.$$