Trigonometry 2009 Final   Name_____

- o NO CALCULATOR is allowed on this exam
- o **SHOW ALL WORK** on the page with the problem.   No points will be given for answers without justification.
- o Circle your answer so it is easy to locate.
- o Answers require **exact form** ($\sqrt{2}, \dfrac{\pi}{3}$, arcsin(2/3), etc.
  - o If you know the value, you need to write it (arcsin(1/2)) $= \pi/6$.
  - o Answers must be simplified, denominators rationalized.

A few formulas for you:

sin (u + v) = sin u cos v + cos u sin v $A = \dfrac{1}{2}ab\sin C$

cos(u+v) = cos u cos v – sin u sin v $c^2 = a^2 + b^2 - 2ab\cos C$

tan (u+v) = $\dfrac{\tan u + \tan v}{1 - \tan u \tan v}$ $\text{Cos } \phi = \dfrac{\vec{u} \bullet \vec{v}}{\|\vec{u}\|\|\vec{v}\|}$

$\sin\dfrac{u}{2} = \pm\sqrt{\dfrac{1-\cos u}{2}}$ $\cos\dfrac{u}{2} = \pm\sqrt{\dfrac{1+\cos u}{2}}$ $\tan\dfrac{u}{2} = \dfrac{1-\cos u}{\sin u}$

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