3/24/11 MATH 1060

# SEC 3.1 VERIFYING IDENTITIES

1. DETERMINE WHETHER AN EQUATION IS AN IDENTITY.

a) $\sin\left(x+\frac{\pi}{6}\right) \stackrel{?}{\neq} \sin x + \sin\frac{\pi}{6}$

NOT AN IDENTITY

b) $(\sin x + \cos x)^2 \stackrel{?}{=} 2\sin x \cos x + 1$

THESE ARE AN IDENTITY

2. GUIDELINES

1) WORK WITH ONE SIDE OF THE EQUATION AT A TIME. OFTEN IT'S BEST TO WORK WITH THE MOST COMPLICATED SIDE.

2) LOOK FOR OPPORTUNITIES TO FACTOR, ADD FRACTIONS, FIND AN LCD, FOIL, MULTIPLY BY THE CONJUGATE

3) LOOK FOR OPPORTUNITIES TO EXCHANGE TRIG. IDENTITIES SINES AND COSINES PAIR WELL. TAN AND SEC PAIR WELL

CSC AND COT PAIR WELL

4. IF NONE OF THE PREVIOUS GUIDELINES WORKED, THEN CHANGE TO SINES AND COSINES.

5. DON'T JUST SIT THERE!
DO SOMETHING!
EVEN PATHS THAT LEAD TO DEAD-ENDS CAN GIVE YOU INSIGHTS.

EX. $(\sin x+\cos x)^2 = 2\sin x\cos x + 1$

$(\sin x+\cos x)(\sin x+\cos x)$

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

$2\sin x\cos x + (\sin^2 x + \cos^2 x)$

$2\sin x\cos x + 1$

TA DA!!