

Helpful Hints for Identities: book work 7.1 → #3-25odd, #31-45 odd

SIMPLIFY #3-25

3. rewrite in terms of sin/cos, then cancel
5. rewrite in terms of sin/cos, combine, use quotient identity
7. rewrite in terms of sin/cos, combine fractions, substitute Pythagorean identity, cancel
9. rewrite in terms of sin/cos, get common denominator, combine fractions, substitute Pythagorean identity, use reciprocal identity
11. rewrite in terms of sin/cos; in the **numerator** → get common denominator and combine fractions; in the **denominator** → write $\sin\theta$ as fraction by putting it over 1; Flip and multiply because dividing by a fraction is the same as multiplying by its reciprocal; substitute Pythagorean identity in numerator; cancel then use quotient identity
13. rewrite in terms of sin/cos; in the **numerator** → combine; in the **denominator** → flip and multiply since dividing by a fraction is the same as multiplying by its reciprocal; cancel
15. split apart fraction into two terms (keep common denominator for each term); rewrite first term using sin/cos then flip and multiply, cancel
17. factor GCF, substitute Pythagorean identity, simplify
19. substitute Pythagorean identity, rewrite in terms of sin/cos, flip and multiply since dividing by a fraction is the same as multiplying by its reciprocal, cancel. **OR** split apart fraction into two terms, then rewrite using sin/cos and simplify
21. rewrite in terms of sin/cos; in the **denominator** → get common denominator and combine fractions; flip and multiply since dividing by a fraction is the same as multiplying by its reciprocal; cancel
23. get common denominator (use parentheses when multiplying), FOIL and/or distribute in numerators and denominators, combine fractions; in **numerator** → substitute Pythagorean identity then combine like terms; factor numerator and denominator then cancel like terms, rewrite using a reciprocal identity
25. rewrite in terms of sin/cos; in the **denominator** → get common denominator and combine fractions; flip and multiply since dividing by a fraction is the same as multiplying by its reciprocal; substitute Pythagorean identity, factor difference of squares in numerator, cancel like terms

VERIFY #31-45

→ keep simpler side “as is” (right side)

→ transform/rewrite/simplify **ONLY THE LEFT SIDE** until both sides are equal.

31. rewrite in terms of sin/cos, flip and multiply since dividing by a fraction is the same as multiplying by its reciprocal, cancel
33. rewrite $\sec u$ then cancel, use reciprocal identity
35. rewrite in terms of sin/cos, flip and multiply, substitute Pythagorean identity, split apart fraction into two terms (keep common denominator for each term), use reciprocal identity
37. rewrite using opposite angle identities (each angle on the inside should be positive), simplify
39. rewrite in terms of sin/cos, get common denominator, combine fractions, substitute Pythagorean identity, use reciprocal identities
41. multiply using FOIL, substitute Pythagorean identity, use reciprocal identity
43. substitute Pythagorean identity, use reciprocal identity, substitute Pythagorean identity
45. multiply using FOIL, simplify $2\tan x \cot x$ using reciprocal identity, rewrite 2 using $1 + 1$ then substitute two Pythagorean identities