Factor each:

1. $16M^2 - 49Q^2$

$= (4m - 7Q)(4m + 7Q)$

2. $g^4 - k^4$

$= (g^2+k^2)(g^2-k^2)$

$= (g^2+k^2)(g \pm k)$

$$\frac{\sin^4(x) - \cos^4(x)}{\sin^2(x) - \cos^2(x)}$$

$$= \frac{(\sin^2 - \cos^2)(\sin^2 + \cos^2)}{\sin^2 - \cos^2}$$

$$= \sin^2 + \cos^2 = 1$$

$$\frac{\text{Tan}x - \text{Tan}x\text{Sin}^2x}{\text{Sin}x\text{Cos}x}$$

$$= \frac{\frac{\sin}{\cos} - \frac{\sin}{\cos}\cdot\sin^2}{\sin\cos}$$

$$= \frac{\sin - \sin^3}{\frac{\cos}{\sin\cos}}$$

$$= \frac{\sin - \sin^3}{\cos}\cdot\frac{1}{\sin\cos}$$

$$= \frac{\sin - \sin^3}{\sin\cos^2}$$

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

$$= \frac{\sin\cdot\cos^2}{\sin\cdot\cos^2}$$

$$= 1$$

Here's another way to simplify this expression:

$$\frac{\text{Tan}x - \text{Tan}x\text{Sin}^2x}{\text{Sin}x\text{Cos}x}$$

$$= \frac{\text{Tan}(1-\sin^2)}{\sin\cos}$$

$$= \frac{\text{Tan}\cdot\cos^2}{\sin\cos}$$

$$= \frac{\text{Tan}\cos}{\sin}$$

$$= \frac{\frac{\sin}{\cos}\cdot\cos}{\sin}$$

$$= \frac{\sin}{\sin} = 1$$

You can now finish Hwk #25:

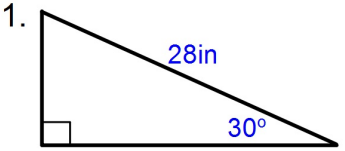
Practice Sheet: Sec 14-1

Simplifying Trigonometric Expressions

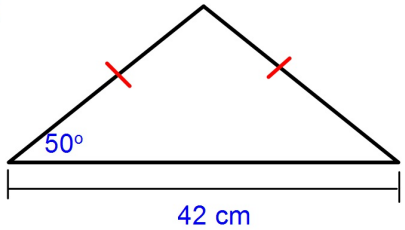
No work = No credit

Find the area of each triangle. Round to the nearest tenth where necessary.

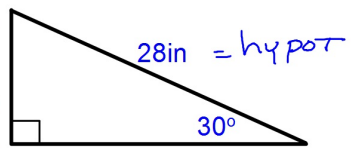
1.



2.



1.



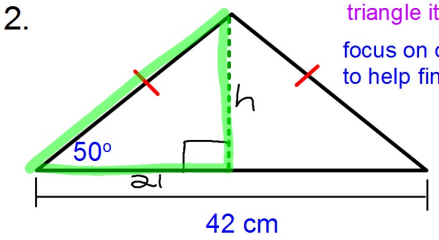
$14 = h$ (short leg = ½ · hypot)

$b = 14\sqrt{3}$

Long leg = short leg · $\sqrt{3}$

$A = \frac{1}{2}bh = \frac{1}{2}(14\sqrt{3})(14) =$ 169.7 in²

2.



When you draw the altitude in an Isosceles triangle it bisects the base.

focus on one of the two right triangles formed to help find the height.

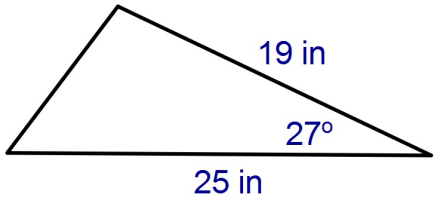
use tangent to find the height.

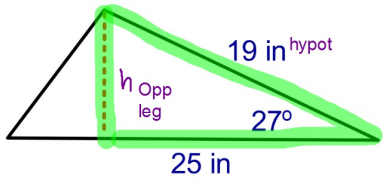
$\tan 50° = \frac{h}{21}$

$h = 25.0$

$\frac{1}{2}(42)(25)$

3. Find the area of this triangle. Round to the nearest tenth where necessary.





Similar to the Isosceles triangle we must draw the height. Unlike the Isosceles the height doesn't bisect the base which means we can't use the 25 to find the height, we must us the 19 which is the hypotenuse of the highlighted right triangle and the height is the opposite leg.

$\sin 27^\circ = \frac{h}{19}$ $h = 8.6$

$A = \frac{1}{2}(25)(8.6) = 107.5 \text{ in}^2$