PreCalc EXAM 4 version 1

name:

1. prove or disprove $\sin a \sin b \quad = \quad \frac{1}{2}\left[\cos(a-b) - \cos(a+b)\right]$

A NOT identity B Identity

2.

$9\cos\left(-300^o\right) + i \cdot 9\sin\left(-300^o\right)$

A $-9e^{(-480^o)i}$

B $9\left(\cos\left(-420^o\right) + i\sin\left(-420^o\right)\right)$

C $-\cos\left(-300^o\right) - i\sin\left(-300^o\right)$

D $9e^{(-120^o)i}$

E $9\left(\cos\left(-300^o\right) \cdot i\sin\left(-300^o\right)\right)$

F $9e^{(-300^o)i}$

3. prove or disprove

$$4\cos^2(2x)\cos(3x) - 2\cos 3x - \cos(7x) = \cos x$$

A NOT identity B Identity

4.

$$\frac{\cos\left(x\right)+1}{\sin\left(x\right)} = \cot\left(x\right) + \csc\left(x\right)$$

A not identity B identity

5.

$15e^{(180^o)i}$

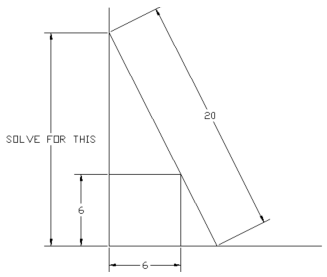
A $\approx -15 + i(0)$

B $\approx 12.9904 + i(0)$

C $15\left(\cos\left(30^o\right) + i\sin\left(30^o\right)\right)$

D $-\cos\left(180^o\right) - i\sin\left(180^o\right)$

6. A twenty foot ladder leans up against a perpendicular wall and just touches the outer top edge of a 6x6x6 cube packing case pushed up close to the wall. How far up the wall is the top of the ladder?



hint: if needed use a calculator to solve the equation you derive

A $h \approx 15.21$ B $h \approx 18.55$ C $h \approx 12.7$

D $h \approx 15.17$ E none of these

7. Convert the cartesian coordinates, (4, 6) , to Polar Coordinates

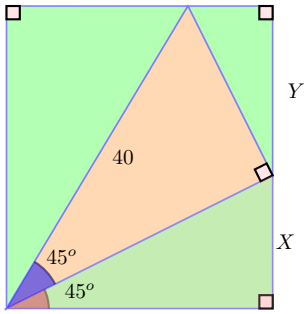
A $r = 2\sqrt{13}\,, \theta = 236.3^o$

B $r = 2\sqrt{13}\,, \theta = 56.31^o$

C $r = -2\sqrt{13}\,, \theta = 236.3^o$

D none of these

8. Determine the value of X and Y.



A $Y = 40 \cdot \cos(20^o)\cos(45^o)$

B $Y = 40 \cdot \sin(20^o + 45^o)$

C $Y = 40 \cdot \sin(20^o)\cos(45^o)$

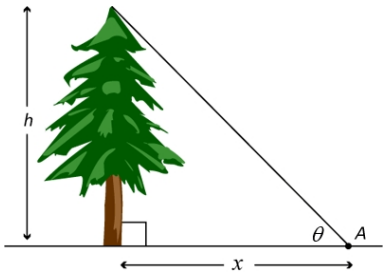
D $X = 2 \cdot 40 \cdot \cos(20^o)\sin(45^o)$

E $X = 40 \cdot \cos(20^o)\sin(45^o)$

F $X = 40 \cdot \sin(20^o)\sin(45^o)$

G none of these

9. Suppose you look at a tree from afar and note the angle of elevation is 60^o. From that point, after walking 12 feet away from the tree, you note the angle of elevation decreased to 47^o. Estimate the height of the tree h [do not use ideas from future part of the course].



A $h = 19.920$ ft B $h = 7.9477$ ft C $h = (-22.755)$ ft D $h = 33.787$ ft

10.

$$\frac{\tan(x)^2}{\sec(x)+1} + 1 = \frac{1}{\cos(x)}$$

A not identity B identity