162 Test 3 Name________________________________

1. Using the addition angle formula for cosine, find $\cos\left(\frac{\pi}{4}+\frac{\pi}{3}\right)$

2. Use the subtraction formula for sine to show $\sin\left(\frac{\pi}{2}-x\right)=\cos x$

3. Find the exact value of $\sin(u+v)$ if $\sin u=\frac{24}{25}, \cos v=\frac{12}{13}$ with both *u*, *v* in quadrant I.

4. Solve for *x*: $\csc x-2=0$

Solve triangle. Please draw a reasonable picture as well.

5. $C = 95^o, B = 25^o, b = 10\,ft$

A = _____ a = _____
B = _____ b = _____
C = _____ c = _____

Solve the triangle, again with a picture.

6. $C = 50^o, a = 18\,ft, b = 12\,ft$

A = _____ a = _____
B = _____ b = _____
C = _____ c = _____

7. Find the area of the triangle above.

8. Multiply: $(3-4i)(1+2i)$

9. Find the solutions to $x^2 - 6x + 13 = 0$ and write your answer in standard form. (ok, complete the square!)

10. Divide: $\frac{1-3i}{2+i}$. Be sure to write the answer in standard for, i.e. as $a+bi$.

11. Find $\left|\sqrt{2}+\sqrt{2}i\right|$

12. Find the “argument” for $\sqrt{2}+\sqrt{2}i$. That is, find the angle.

13. Using your answers in 11 and 12, write $\sqrt{2}+\sqrt{2}i$ in trigonometric form.

14. Use the trigonometric form to raise $\sqrt{2}+\sqrt{2}i$ to the 4^{th} power. That is, find $\left(\sqrt{2}+\sqrt{2}i\right)^4$

15. Convert your answer to standard form.

16. Find the 3 cube roots of 1.

17. Using your answer above, find the 3 cube roots of 64.