Precalculus (Math 1) HW Set #10.

Due Wednesday, May 6th.

In order to receive a ✓, you must attempt all problems and write out all steps leading to your answers neatly and legibly. You cannot simply write the correct answer to demonstrate your mathematical understanding.
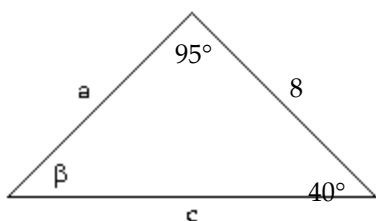
You must include your name, the course title and section number on the first page. All homework sets must be stapled. No late homework will be accepted without my express permission. You may receive a ✗ if these guidelines are not followed.

Good luck!

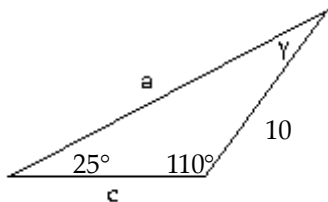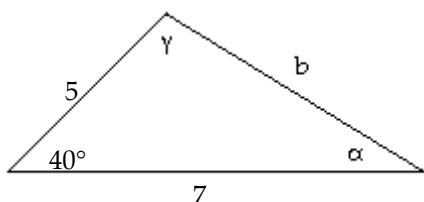**Solve the triangle using the Law of Sines.**

1)

1) _____

95°

a

8

β

40°

c

2)

2) _____

γ

a

10

25°   110°

c

Solve the triangle using the Law of Cosines.
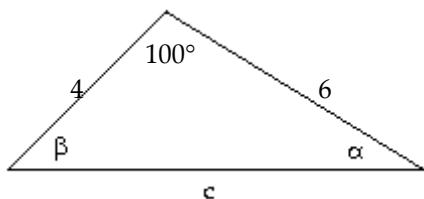
3)

3) _____

γ

b

5

40°

α

7

4)

4) _____

100°

4

6

β

α

c

1

The polar coordinates of a point are given. Find the rectangular coordinates of the point.

5) $\left(5, \dfrac{2\pi}{3}\right)$

5) _____

The rectangular coordinates of a point are given. Find polar coordinates for the point.

6) $(-2, 2)$

6) _____

Write the complex number in polar form. Express the argument in degrees, rounded to the nearest tenth, if necessary.

7) $1 - \sqrt{3}i$

7) _____

8) $-5 - 5i$

8) _____

Write the expression in the standard form a + bi.

9) $\left[\sqrt{2}\left(\cos\dfrac{3\pi}{4} + i\sin\dfrac{3\pi}{4}\right)\right]^4$

9) _____

10) $\left[\sqrt{3}\left(\cos\dfrac{5\pi}{6} + i\sin\dfrac{5\pi}{6}\right)\right]^4$

10) _____

Find all the complex roots. Leave your answers in polar form with the argument in degrees.

11) The complex fourth roots of -16

11) _____

12) The complex fifth roots of $\sqrt{3} + i$

12) _____

1) $a = 7.27$, $c = 11.27$, $\beta = 45°$

2) $a = 22.24$, $c = 16.73$, $\gamma = 45°$

3) $b = 4.51$, $\alpha = 45.4°$, $\gamma = 94.6°$

4) $c = 7.77$, $\alpha = 30.5°$, $\beta = 49.5°$

5) $\left(-\dfrac{5}{2}, \dfrac{5\sqrt{3}}{2} \right)$

6) $\left(2\sqrt{2}, \dfrac{3\pi}{4} \right)$

7) $2(\cos 300° + i \sin 300°)$

8) $5\sqrt{2}(\cos 225° + i \sin 225°)$

9) -4

10) $-\dfrac{9}{2} - \dfrac{9\sqrt{3}}{2}i$

11) $2(\cos 45° + i \sin 45°)$, $2(\cos 135° + i \sin 135°)$, $2(\cos 225° + i \sin 225°)$, $16(\cos 315° + i \sin 315°)$

12) $\sqrt[5]{2}(\cos 6° + i \sin 6°)$, $\sqrt[5]{2}(\cos 78° + i \sin 78°)$, $\sqrt[5]{2}(\cos 150° + i \sin 150°)$, $\sqrt[5]{2}(\cos 222° + i \sin 222°)$, $\sqrt[5]{2}(\cos 294° + i \sin 294°)$