

Math 112
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Fall 2005
Assignment #7
Due Wednesday Nov. 16

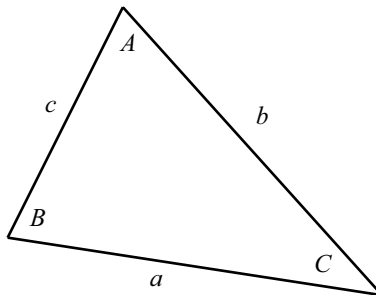
Note: It will probably be easier for you to do the additional problems before the problems from the textbook.

From the Textbook:

- Section 8.3: 23, 24, 26, 27, 28 (Hint: use half-angle-id)
- Section 8.4: I don't really like this section's problems in the book.

Additional Exercises: (Be sure to justify all your answers)

For the following problems use the triangle



1. Solve the triangle (when possible), given:
 - (i) $a = 2$, $b = 2$, and $c = 2\sqrt{3}$.
 - (ii) $a = 5$, $b = 7$, and $c = 6$.
 - (iii) $a = 2$, $b = 6$, and $c = 3$.
 - (iv) $a = 6$, $b = 3\sqrt{2}$, and $C = 45^\circ$.
2. Given that $a = 2$, $b = 3$, and $C = 45^\circ$ find c .
3. Given that $b = 4$, $c = 1$, and $A = 120^\circ$ find a .

4. Given that $a = 6$, $c = 4$, and $B = 150^\circ$ find a .
5. Given that $b = 4$, $c = 5$, and $A = 15^\circ$ find a .
[Hint: use half-angle id]
6. Given that $a = 12$, $A = 45^\circ$, and $B = 30^\circ$ find b and C .
7. Given that $c = 3$, $B = 120^\circ$, and $C = 45^\circ$ find b and A .
8. Given that $a = 7$, $A = 30^\circ$, and $B = 30^\circ$ find b and C .
9. Given that $b = 4$, $B = 135^\circ$, and $C = 30^\circ$ find c and A .
10. Given that $a = 6$, $A = 120^\circ$, and $C = 30^\circ$ find c and B .

Note: For problems 11-17, there may be 0, 1, or 2 solutions.

11. Given that $a = 4\sqrt{3}$, $b = 4$, and $B = 30^\circ$ find A and C .
12. Given that $b = 2$, $c = 6$, and $B = 150^\circ$ find A and C .
13. Given that $b = \frac{\sqrt{3}}{3}$, $c = \frac{1}{2}$, and $C = 60^\circ$ find A and C .
14. Given that $a = 4$, $b = \sqrt{2}$, and $B = 135^\circ$ find A and C .
15. Given that $b = \sqrt{3}$, $c = \sqrt{2}$, and $B = 60^\circ$ find A and C .
16. Given that $b = \frac{\sqrt{2}}{2}$, $c = 1$, and $C = 45^\circ$ find A and C .
17. Given that $a = 17\sqrt{2}$, $c = 17$, and $C = 30^\circ$ find A and B .
18. True or False:
 - (a) It is possible for the sides of a triangle to have lengths 3, 5, & 10.
 - (b) It is possible for the sides of a triangle to have lengths 2, 5, & 6.
 - (c) It is possible for the interior angles of a triangle to have measures 63° , 74° , and 42° .