Advanced Math
5.6-5.8 Review (Day 13)

Name _____

Directions: Draw a triangle for each problem and then solve (meaning find all solutions/missing parts). If no solutions exist, write none. *Round to the nearest tenth.*

Hint: You will be using Law of Sines, Ambiguous Case for L.O.S., and Law of Cosines

Write the formulas below

Law of Sines

$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Law of Cosines

$a^2 = b^2 + c^2 - 2bc\cos A$

$b^2 = a^2 + c^2 - 2ac\cos B$

$c^2 = a^2 + b^2 - 2ab\cos C$

1) $A = 38°, B = 63°, c = 15$

$C° = 79°$

$a = 9.4$

$b = 13.6$

$\frac{a}{\sin 38°} = \frac{15}{\sin 79°}$

$a = 9.4$

$\frac{b}{\sin 63} = \frac{15}{\sin 79}$

$b = 13.6$

2) $b = 50, a = 33, A = 132°$

$\frac{33}{\sin 132°} = \frac{50}{\sin B}$

NO SOLN

3) $a = 12, b = 15, A = 55°$

$15\sin 55 < 12 < 15$?

12.29 no!

$\frac{12}{\sin 55} = \frac{15}{\sin B}$ NO SOLN

4) $a = 5, b = 7, c = 10$

$5^2 = 7^2 + 10^2 - 2(7)(10)\cos A$

$-124 = -140\cos A$

$.88 = \cos A$

$27.7° = A$

$\frac{5}{\sin 27.7} = \frac{7}{\sin B}$

$40.6° = B$

5) $a = 10, c = 8, B = 100°$ L.O.C

$b^2 = 10^2 + 8^2 - 2(10)(8)\cos 100$

$b \approx 13.8$

$\frac{13.8}{\sin 100} = \frac{10}{\sin A}$

$A = 45.5°$

$A \approx 45.5°$

$C = 180 - (100 + 45.5) = 34.5°$

$b = 13.8$

6) $A = 30°, B = 45°, a = 10$ L.OS

$\angle C = 180 - (30 + 45) = 105°$

$\frac{10}{\sin 30°} = \frac{b}{\sin 45°}$ $\frac{10}{\sin 30°} = \frac{c}{\sin 105°}$

$14.1 = b$ $19.3 = C$

$b = 14.1$

$C = 19.3$

$\angle C = 105°$

Determine the number of possible solutions for each triangle.

7) $A = 42°, a = 22, b = 12$

$12 \sin 42° < 22 < 12$

FALSE!

$\frac{22}{\sin 42} = \frac{12}{\sin B}$ 1 soln

$21.4° = B$

8) $a = 15, b = 25, A = 85°$

$25 \sin 85 < 15 < 25$

$24.9 < 15 < 25$ FALSE!

$\frac{15}{\sin 85} = \frac{25}{\sin B}$ → ERROR

NO soln

9) $A = 58°, a = 4.5, b = 5$

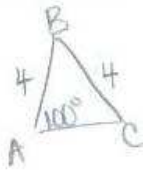
$5 \sin 58 < 4.5 < 5$

$4.2 < 4.5 < 5$ → TRUE!

2 solns

10) $A = 100°, a = 4, c = 4$

↳ 0 or 1 soln



$\frac{4}{\sin 100} = \frac{4}{\sin C}$

$80° = C$

1 soln