Today's Plan:

Learning Target (standard): I will use the Law of Sines and Cosines to solve triangles. I will find the area of oblique triangles.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

p.552 #2-24 even, 34-40 even

$2) A = 3u^2$

$4) A \approx 1.71u^2$

$6) A = \frac{\sqrt{1071}}{4}u^2$

$8) A = \frac{3\sqrt{55}}{4}u^2$

$10) A \approx 0.17u^2$

$12) A = 6\sqrt{3}u^2$

$14) A = \sqrt{3}u^2$

$16) A = 3u^2$

$18) A = 6u^2$

$20) A = 2\sqrt{2}u^2$

$22) A = \frac{\sqrt{455}}{4}u^2$

$24) A = 6\sqrt{26}u^2$

$34) A \approx 1.89u^2$

$36) A \approx 8.50u^2$

$38) A \approx 10.66u^2$

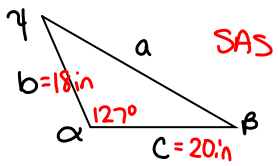
$40) 1644.9\,ft^2$

Solve the triangle:

$\alpha = 127°$

$b = 18in$

$c = 20in$



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

$a^2 = 18^2 + 20^2 - 2(18)(20)\cos 127°$

$a^2 = 324 + 400 - 720(-.6018)$

$a^2 = 724 + 433.3068$

$a^2 = 1157.3068$

$a = 34.019\,in$

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

$18^2 = (34.019)^2 + 20^2 - 2(34.019)(20)\cos\beta$

$324 = 1157.3068 + 400 - 1360.76\cos\beta$

$-1233.3068 = -1360.76\cos\beta$

$\cos\beta = .9063$

$\beta = 24.996°$

$\gamma = 180° - 127° - 24.996°$

$\gamma = 28.034°$

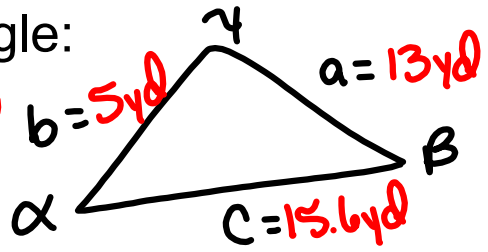
Find the area the triangle:

$a = 13yd$

$b = 5yd$

$c = 15.6yd$

SSS



$s = \frac{1}{2}(a+b+c)$

$= \frac{1}{2}(13+5+15.6)$

$= \frac{1}{2}(33.6)$

$s = 16.8$

$A = \sqrt{s(s-a)(s-b)(s-c)}$

$= \sqrt{16.8(16.8-13)(16.8-5)(16.8-15.6)}$

$= \sqrt{16.8(3.8)(11.8)(1.2)}$

$= \sqrt{903.9744}$

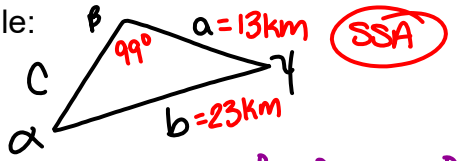
$A = 30.066\,yd^2$

Solve the triangle:

$a = 13km$

$b = 23km$

$\beta = 99°$



$\frac{\sin 99°}{23} = \frac{\sin\alpha}{13}$

$23\sin\alpha = 13\sin 99°$

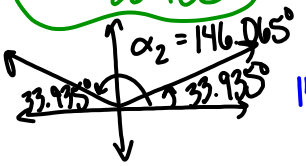
$\sin\alpha = \frac{13\sin 99°}{23}$

$\sin\alpha = \frac{13(.9877)}{23}$

$\sin\alpha = .5583$

$\alpha = \sin^{-1}(.5583)$

$\alpha = 33.935°$



$146.065° + 99° > 180°$

(1 Δ)

$\gamma = 180° - 99° - 33.935°$

$\gamma = 47.065°$

$\frac{\sin 99°}{23} = \frac{\sin 47.065°}{C}$

$C\sin 99° = 23\sin 47.065°$

$C = \frac{23\sin 47.065°}{\sin 99°}$

$= \frac{23(.7321)}{.9877}$

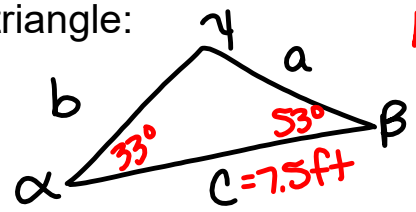
$C = 17.049\ km$

Find the area the triangle:

$\alpha = 33°$

$\beta = 53°$

$c = 7.5\,ft$



ASA

$\gamma = 180° - 33° - 53°$

$\gamma = 94°$

$A = \frac{c^2\sin\alpha\sin\beta}{2\sin\gamma}$

$= \frac{(7.5)^2\sin 33°\sin 53°}{2\sin 94°}$

$= \frac{56.25(.5446)(.7986)}{2(.9976)}$

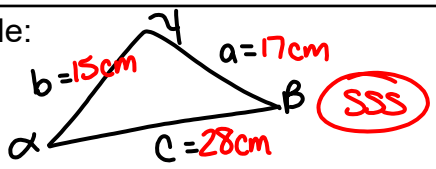
$A = 12.263\,ft^2$

Solve the triangle:

$a = 17cm$

$b = 15cm$

$c = 28cm$



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

$17^2 = 15^2 + 28^2 - 2(15)(28)\cos\alpha$

$289 = 225 + 784 - 840\cos\alpha$

$-720 = -840\cos\alpha$

$.8571 = \cos\alpha$

$\alpha = \cos^{-1}(.8571)$

$\alpha = 31.007°$

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

$225 = 289 + 784 - 2(17)(28)\cos\beta$

$-848 = -952\cos\beta$

$.8908 = \cos\beta$

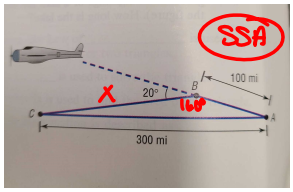
$\beta = \cos^{-1}(.8908)$

$\beta = 27.032°$

$\gamma = 180° - 31.007° - 27.032°$

$\gamma = 121.961°$

An airplane flies from city A to city B, a distance of 100 miles, and then turns through an angle of 20^0 and heads toward city C. If the distance from A to C is 300 miles, how far is it from city B to city C?



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

$\frac{\sin 160°}{300} = \frac{\sin C}{100}$

$300\sin C = 100\sin 160°$

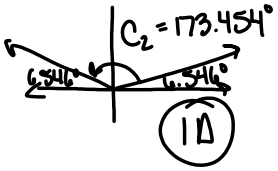
$\sin C = \frac{100\sin 160°}{300}$

$\sin C = \frac{100(.3420)}{300}$

$\sin C = .1140$

$C = \sin^{-1}(.1140)$

$C = 6.546°$



$A = 180° - 160° - 6.546°$

$A = 13.454°$

$\frac{\sin 160°}{300} = \frac{\sin 13.454°}{X}$

$X\sin 160° = 300\sin 13.454°$

$X = \frac{300\sin 13.454°}{\sin 160°}$

$X = \frac{300(.2327)}{.3420}$

$X = 204.079 mi$

Assignment:

p.563 #9,11,21,23,25,29,33

* Check answers in the back of the book *

* TEST on Solving Oblique Triangles and finding the area of oblique triangles - non-applied section Friday *

*TEST - Applied section of oblique triangles will be Monday *