Practice Key

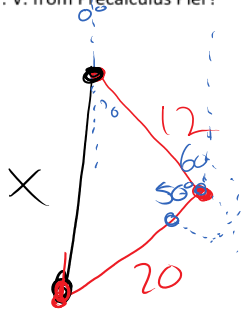
Monday, January 25, 2016 7:24 AM

Precalculus
Section 5.5 and 5.6 Practice

Name: _____

Get your bearings!

Mr. Vonnahme sails his tugboat from Precalculus Pier at a bearing of 120 degrees at a breathtaking speed of 4 miles per hour. After 3 hours of sailing, he decides, on a whim, to change his bearing to 250 degrees, and throttles his tugboat up to a whopping 5 miles per hour! 4 hours later, he has gotten bored, and decides to head home to do some math problems. How far is Mr. V. from Precalculus Pier?



SAS

$x^2 = 12^2 + 20^2 - 2(12)(20)\cos 50°$

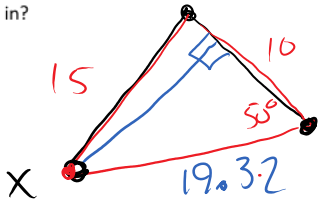
$544 - 480\cos 50$

$x \approx 15.3$ miles

Fun at the Vonnahme Household

Kate Vonnahme is making triangles in the backyard. She walks 15 steps, then turns and walks another 10 steps. Before walking back to her starting point, she turns 50 degrees and exclaims, "I love math!". What is the area of Kate's triangle? What units is this area in?

SSA



$\frac{15}{\sin 50} = \frac{10}{\sin x}$

30.71°

149.29

$A = 74.02$ steps^2

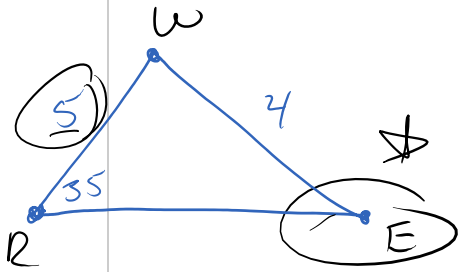
If Kate's steps measure approximately 16 inches, what is the area of her triangle in square feet?

$A = 115.66$ ft^2

#1-#6 Use the given information and either the Law of Sines or Law of Cosines to find the requested information.

1. $\Delta ERW, \angle R = 35°, e = 5, r = 4$ Find w.

SSA Law of Sines



$\Delta 1$ $\angle E = 45.8°$ $w = 6.88$

$\Delta 2$ $\angle E = 134.2°$ $w = 1.307$

2. $\Delta ABC, a = 8, b = 5, \angle C = 32°0'$. Solve the triangle.

32.17°

SAS Law of Cosines

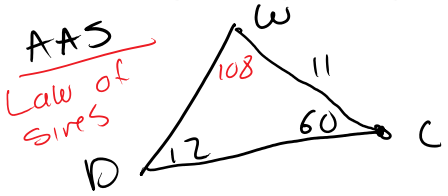
$c = 4.61$

$\angle B = 35.27°$

$\angle A = 112.56°$

3. $\Delta DWC, \angle D = 12°, \angle C = 60°, d = 11.$ Find c and w.

AAS Law of Sines



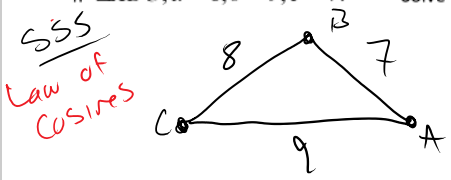
$\frac{\sin 60}{c} = \frac{\sin 12}{11}$

$c = 45.82$

$w = 50.32$

4. $\Delta ABC, a = 8, b = 9, c = 7.$ Solve the triangle.

SSS Law of Cosines



$9^2 = 7^2 + 8^2 - 2(7)(8)\cos\angle B$

$\frac{7}{\sin C} = \frac{9}{\sin(73.4)}$

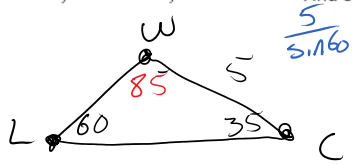
$\angle B = 73.4°$

$\angle C = 48.19°$

$\angle A = 58.41°$

5. $\Delta LCW, \angle C = 35°, \angle L = 60°, l = 5.$ Find c and w.

AAS Law of Sines



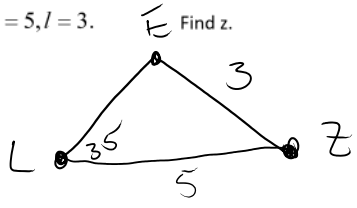
$\frac{5}{\sin 60} = \frac{c}{\sin 35}$

$c = 3.31$

$w = 5.75$

6. $\Delta ELZ, \angle L = 35°, e = 5, l = 3.$ Find z.

SSA Law of Sines



$\frac{3}{\sin 35} = \frac{5}{\sin E}$

$\Delta 1$ $\angle E = 72.9°$ $\angle Z = 72.07°$ $z = 4.98$

$\Delta 2$ $\angle E = 107.07°$ $\angle Z = 37.93°$ $z = 3.22$