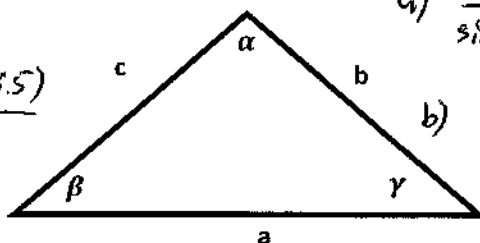


Name: key
 Advanced Math - Test 4 review
 1/30/2017

$$\frac{\sin(\beta)}{5} = \frac{\sin(48.5)}{6}$$



$$a) \frac{a}{\sin(50)} = \frac{5}{\sin(35)}$$

$$b) 6^2 = 5^2 + 8^2 - 2(5)(8)\cos(\alpha)$$

$$0.6625 = \cos(\alpha)$$

1) Using the triangle above, find the missing values of the triangle for each situation.

Given:	α	β	γ	a	b	c
a)	50°	35°	95°	6.68	5	8.68
b)	48.5°	38.6°	92.9°	6	5	8
c)	100°	43.8°	36.2°	5	3.51	3
d)	40°	41°	99°	9.8	10	15

$$d) a^2 = 10^2 + 15^2 - 2(10)(15)\cos(40)$$

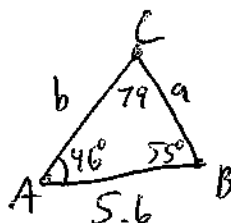
$$a^2 = 95.2$$

$$c) \frac{\sin(\gamma)}{3} = \frac{\sin(100)}{5}$$

2) Fill in the following table for the angles given.

$\theta \rightarrow$	a) -30°	b) 135°	c) $\frac{4\pi}{3}$
Quadrant:	IV	II	III
$\sin(\theta)$	$-\frac{1}{2}$	$+\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{3}}{2}$
$\cos(\theta)$	$+\frac{\sqrt{3}}{2}$	$-\frac{\sqrt{2}}{2}$	$-\frac{1}{2}$
$\tan(\theta)$	$-\frac{\sqrt{3}}{3}$	-1	$+\sqrt{3}$
$\csc(\theta)$	-2	$+\sqrt{2}$	$-2\sqrt{3}/3$
$\sec(\theta)$	$+2\sqrt{3}/3$	$-\sqrt{2}$	-2
$\cot(\theta)$	$-\sqrt{3}$	-1	$+\sqrt{3}/3$

3) Two forest rangers stationed 5.6 miles apart at points A and B in a mountain range observe the same illegal campfire at point C some distance away. They measure angles CAB and CBA to be 46° & 55° respectively. How far is each ranger from the campfire?



$$\frac{b}{\sin(55)} = \frac{5.6}{\sin(79)}$$

$$b = 4.7 \text{ mil}$$

$$c = 4.1 \text{ mil}$$

$$\frac{1}{2} a \cdot b \sin(\gamma)$$

4) Find the area of the triangles described in #1.

a) 16.6	b) 15
c) 5.2 $\frac{1}{2}(5)(3.5) \sin(36.2)$	d) 48.4 $\frac{1}{2}(7.8)(10) \sin(79)$

5) Convert the following angles from radians to degrees or vis versa. Leave π in your answer.

a) $\frac{100^\circ}{180} \times \pi = \frac{5\pi}{9}$	b) $\frac{7\pi}{3} \times \frac{180}{\pi} = 420^\circ$
c) $\frac{335^\circ}{180} \times \pi = \frac{67\pi}{36}$	d) $\frac{\pi}{9} \times \frac{180}{\pi} = 20^\circ$

6) Find ALL possible values of each expression. Leave your answers in degrees.

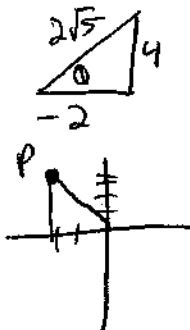
a) $\sin^{-1}\left(-\frac{1}{2}\right)$ 330 + 360n 210 + 360n	b) $\tan^{-1}(\sqrt{3})$ 60 + 360n 240 + 360n
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7) Solve the following equations to the nearest tenth. Use the given restrictions.

a) $\cos(\theta) = -0.25$, for $180^\circ < \theta < 270^\circ$ $\theta = 104.5^\circ$	b) $\sin(\theta) = 0.25$, for $90^\circ < \theta < 180^\circ$ $\theta = 165.5^\circ$
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8) Given the following points. Find the exact value of the six trig functions.

a) P(-2, 4)	b) Q(1, 1)
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$$\begin{aligned}\sin &= 4/\sqrt{20} = 2\sqrt{5}/5 \\ \cos &= -2/\sqrt{20} = -\sqrt{5}/5 \\ \tan &= -2 \\ \csc &= \sqrt{5}/2 \\ \sec &= -\sqrt{5} \\ \cot &= -\frac{1}{2}\end{aligned}$$



$$\begin{aligned}\sin &= \sqrt{2}/2 \\ \cos &= \sqrt{2}/2 \\ \tan &= 1 \\ \csc &= \sqrt{2} \\ \sec &= \sqrt{2} \\ \cot &= 1\end{aligned}$$