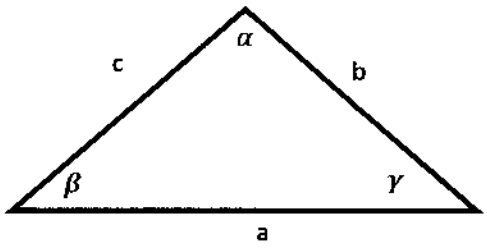
Name: Key 2/1/2018 Trig – Test 4 Review



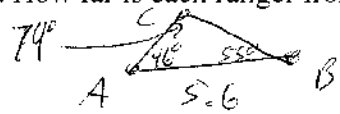
1) Given the triangle above, find the missing values of the triangle for each situation.

Given:	α	β	γ	a	b	c
a)	32.2°	~~57~~ 52.8°	95°	2.67	4	5
b)	35.1°	50°	94.9°	6	8	10.4
c)	100°	50°	30°	5	3.89	2.54
d)	48.5°	38.6°	92.9°	6	5	8
e)	30°	103.1°	46.9°	2.05	4	3

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

θ →	a) −30°	b) 135°	c) $\frac{4\pi}{3}$ 60°
Quadrant:	IV	~~II~~ III	III
sin(θ)	$-1/2$	$+\sqrt{2}/2$	$-\sqrt{3}/2$
cos(θ)	$+\sqrt{3}/2$	$-\sqrt{2}/2$	$-1/2$
tan(θ)	$-\sqrt{3}/3$	-1	$+\sqrt{3}$
csc(θ)	-2	$+\sqrt{2}$	$-2\sqrt{3}/3$
sec(θ)	$+2\sqrt{3}/3$	$-\sqrt{2}$	-2
cot(θ)	$-\sqrt{3}$	-1	$+\sqrt{3}/3$

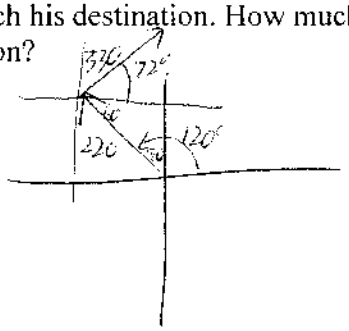
3) Two forest rangers stationed 5.6 miles apart at points A and B in a mountain range observe the same illegal campfire at point C some distance away. They measure angles CAB and CBA to be 46° & 55° respectively. How far is each ranger from the campfire?

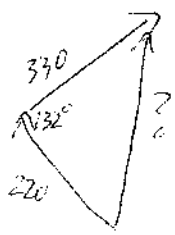


$AC = 4.67$ mil $\quad \frac{a}{\sin(55)} = \frac{5.6}{\sin(79)}$

$BC = 4.1$ mil

4) A pilot flew his airplane at a constant speed of 220 mph with a 120° heading. After one hour of flying he changed the direction of his course to 72°. He continued in this direction for one and one-half hours to reach his destination. How much farther was this flight than a straight-line flight to his destination?



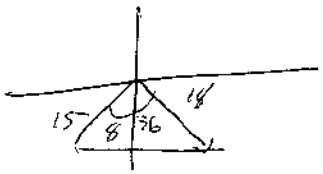


$c^2 = 330^2 + 220^2 - (220)(330)\cos(132)$

$c = 504.4$ mil

Answer: $330 + 220 - 504.4$

45.6 mil



$c^2 = 18^2 + 15^2 - 2 \cdot 18 \cdot 15 \cos(44)$

$c \approx 12.67$ mi

5) A fishing boat adrift at sea indicated its position as 18 miles S36°E from a coast guard station. A coast guard patrol boat indicated its position as 15 miles S8°W of the coast guard station. How far was the patrol boat from the fishing boat?

6) Fill in the following table about the parent functions.

Function	Domain	Range	Min	Max	Period	Symmetry	x-inter
Sin	$(-\infty, \infty)$	$[-1, 1]$	$(270, -1)$	$(90, 1)$	$360°$	origin	$0 + 180n$
Cos	↓	↓	$(180, -1)$	$(0, 1)$	↓	y-axis	$90 + 180n$
Tan	$(-\infty, \infty)$ except odd mult. 90	$(-\infty, \infty)$	—	—	$180°$	origin	$0 + 180n$
Csc	$(-\infty, -1] \cup [1, \infty)$	$(-\infty, \infty)$ except $180n$	$(90, 1)$	$(270, -1)$	$360°$	↓	—
Sec	$(-\infty, \infty)$ except $90 + 180n$	$(-\infty, -1] \cup [1, \infty)$	$(0, 1)$	$(180, -1)$	↓	y-axis	—
Cot	$(-\infty, \infty)$ except $180n$	$(-\infty, \infty)$	—	—	$180°$	origin	$90 + 180n$

7) For the following trig functions, find their period.

a) $\sin(6\theta)$

$6\theta = 360$

$\theta = 60°$

b) $6\tan\left(\frac{\theta}{2}\right)$

$\frac{\theta}{2} = 180°$

$\theta = 360°$

c) $-3\cos(10\theta)$

$10\theta = 360$

$\theta = 36°$