Accelerated Geometry CC
17.1—17.3 Review

NAME: KEY
Period: ____ **Date:** ____

1. Find the corresponding radian measure: (a) $-240°$ $-\frac{4\pi}{3}$ (b) $420°$ $\frac{7\pi}{3}$

degree to radian: $\times \frac{\pi}{180°}$

2. Find the corresponding degree measure: (a) 3.4 $194.81°$ (b) $-\frac{7\pi}{4}$ $-315°$

radian to degree: $\times \frac{180°}{\pi}$

3. Find the measure of a central angle θ in a circle of radius 5 ft. if the angle is subtended by an arc of length 7 ft. $s = r\theta$

$7 = 5\theta \rightarrow \theta = \frac{7}{5}$

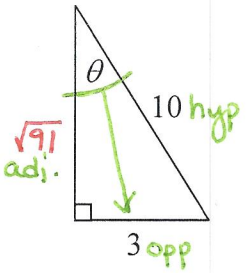
4. A circular arc of length 100 ft. subtends a central angle of $70°$. Find the radius of the circle.

$s = r\theta$

$100 = r\left(\frac{7\pi}{18}\right)$ ← radians $= \frac{7\pi}{18}$

$r = 81.85$ ft.

5. Find the values of the six trigonometric functions of θ.

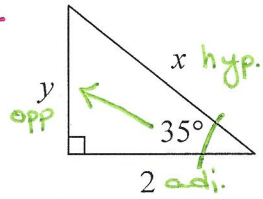


$\sin\theta = \frac{3}{10}$ $\csc\theta = \frac{10}{3}$

$\cos\theta = \frac{\sqrt{91}}{10}$ $\sec\theta = \frac{10\sqrt{91}}{91}$

$\tan\theta = \frac{3\sqrt{91}}{91}$ $\cot\theta = \frac{\sqrt{91}}{3}$

6. Find the sides labeled x and y.



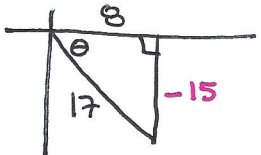
$\cos 35 = \frac{2}{x}$

$x = \frac{2}{\cos 35} = \boxed{2.44}$

$2 \cdot \tan 35 = \frac{y}{2} \cdot 2$

$\boxed{y = 1.40}$

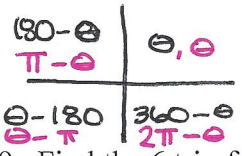
7. Find the values of the trig functions of θ given that $\cos\theta = \frac{8}{17}$ and $\sin\theta < 0$.



$\sin\theta = \frac{-15}{17}$ $\cos\theta = \frac{8}{17}$ $\tan\theta = \frac{-15}{8}$

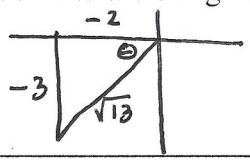
$\csc\theta = 17/-5$ $\sec\theta = 17/8$ $\cot\theta = 8/-15$

8. Find the reference angle for $\theta = \frac{3\pi}{5}$.



ref $\angle = \pi - \frac{3\pi}{5} = \frac{2\pi}{5}$

9. Find the 6 trig functions of the point $(-2,-3)$.



$\sin\theta = -\frac{3\sqrt{13}}{13}$ $\cos\theta = -\frac{2\sqrt{13}}{13}$ $\tan = 3/2$

$\csc\theta = -\sqrt{13}/3$ $\sec\theta = -\sqrt{13}/2$ $\cot\theta = 2/3$

$s = \frac{o}{h}$ $\csc = h/o$

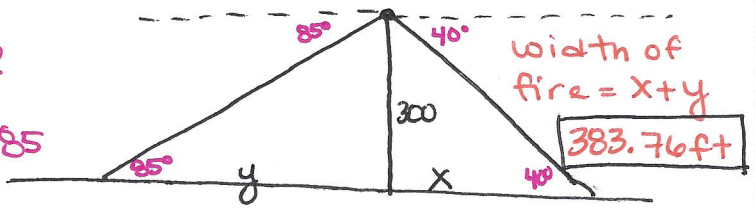
$c = \frac{a}{h}$ $\sec = h/a$

$t = o/a$ $\cot = a/o$

10. A helicopter is dropping water on a forest fire from a height of 300 ft. If one side of the fire makes an angle of depression of 40°, and the other side makes an angle of depression of 85° on the other side of the helicopter, how wide is the fire?

$\tan 40 = \frac{300}{x}$ $\quad x = \frac{300}{\tan 40} = 357.53\text{ft}.$

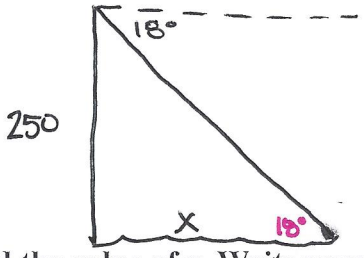
$\tan 85 = \frac{300}{y}$ $\quad y = 300/\tan 85$ $\quad y = 26.25$



width of fire = x + y

383.76ft

11. From the top of a 250 ft lighthouse, the angle of depression to a ship in the ocean is18°. How far is the ship from the base of the lighthouse?



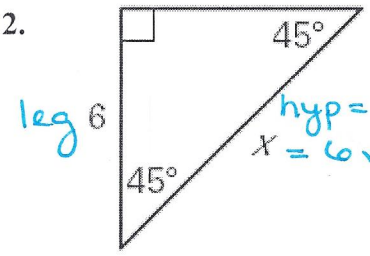
$\tan 18 = \frac{250}{x}$

$x = \frac{250}{\tan 18}$

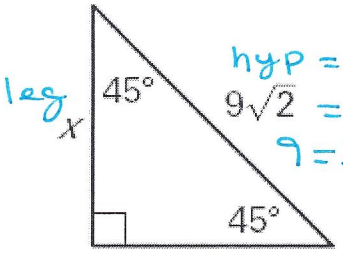
$x = 769.42\text{ft}$

Find the value of *x*. Write your answer in simplest radical form.

12.

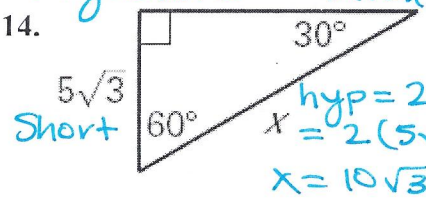


13.

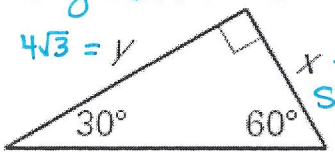


Find the value of each variable. Write your answers in simplest radical form.

14. long = short √3 $\quad y = 5(\sqrt{3})(\sqrt{3}) = 15$



15. long = short √3 $\quad 4\sqrt{3} = y$



8

hyp = 2short

8 = 2x

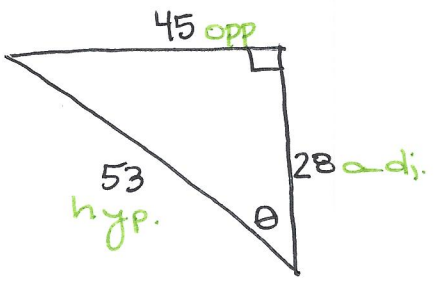
4 = x

16. **Find the following trigonometric ratios. Exact Answers.**

sin A= 45/53 $\quad$ cot A= 28/45

cos A= 28/53 $\quad$ sec A= 53/28

tan A= 45/28 $\quad$ csc A= 53/45



supplement: $180-\theta$ or $\pi-\theta$

complement: $90-\theta$ or $\pi/2-\theta$

17. Find a positive and a negative coterminal angle for each of the following: $\pm 360°$, or $\pm 2\pi$

a) $-120°$ $240°, -480°$

b) $\frac{2\pi}{7}$ $\frac{16\pi}{7}, -\frac{12\pi}{7}$

c) $405°$ $765°, -315°$

d) $\frac{17\pi}{24}$ $\frac{65\pi}{24}, -\frac{31\pi}{24}$

18. Find the complement and supplement for each of the following:

a) $85°$ $5°, 95°$

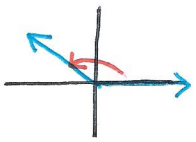
b) $\frac{2\pi}{7}$ $\frac{3\pi}{14}, \frac{5\pi}{7}$

c) $\frac{11\pi}{16}$ no comp. $\frac{5\pi}{16}$

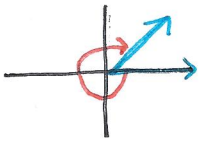
d) $255°$ no comp, no supp.

19. Determine the Quadrant of the following angles:

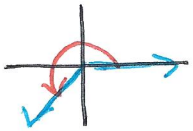
a) $\frac{3\pi}{4}$, II



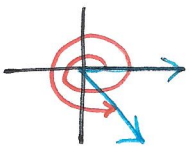
b) $-315°$ I



c) $\frac{25\pi}{24}$ III



d) $\frac{11\pi}{3}$ IV



20. Label what trig functions are positive in each quadrant.

STUDENTS	All
sinθ, cscθ	Everything
TAKE	CALCULUS
tanθ, cotθ	cosθ, secθ