SOH CAH TOA

Geometry B

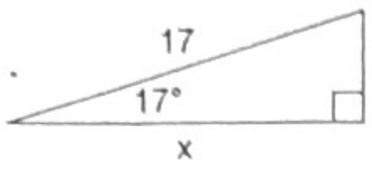
Name Key

Worksheet E

Date _____ Block ____

Find the missing side. Round to the nearest tenth.

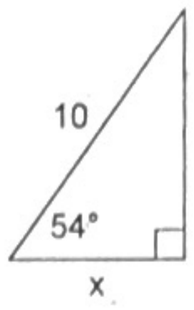
1)



$\cos 17 = \frac{x}{17}$

$x = 16.26$

2)



$\cos 54 = \frac{x}{10}$

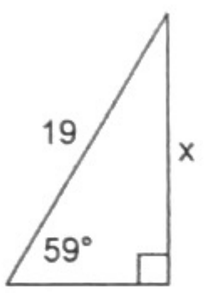
$\frac{10}{1} \cdot .5878 = \frac{x}{10} \cdot \frac{10}{1}$

$x = 5.88$

Steps

1) choose trig function
2) write Equation
3) Calculate trig
4) Solve

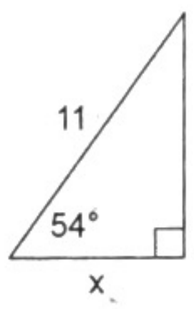
3)



$\sin 59 = \frac{x}{19}$

$x = 16.29$

4)

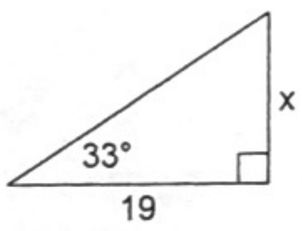


$\cos 54 = \frac{x}{11}$

$\frac{11}{1} \cdot .5878 = \frac{x}{11} \cdot \frac{11}{1}$

$x = 6.47$

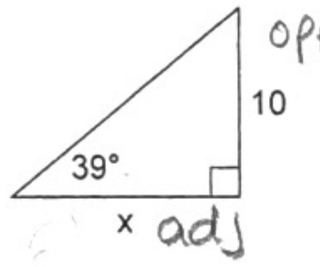
5)



$\tan 33 = \frac{x}{19}$

$x = 12.34$

6)



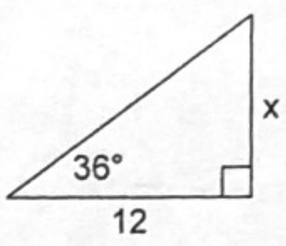
$\tan 39 = \frac{10}{x}$

$\frac{x}{1} \cdot .8098 = \frac{10}{x} \cdot \frac{x}{1}$

$\frac{.8098x}{.8098} = \frac{10}{.8098}$

$x = 12.35$

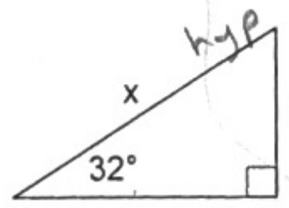
7)



$\tan 36 = \frac{x}{12}$

$x = 8.72$

8)



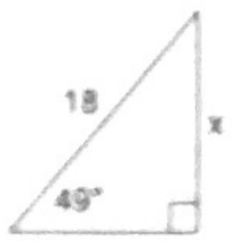
$\sin 32 = \frac{14}{x}$

$\frac{x}{1} \cdot .5299 = \frac{14}{x} \cdot \frac{x}{1}$

$\frac{.5299x}{.5299} = \frac{14}{.5299}$

$x = 26.42$

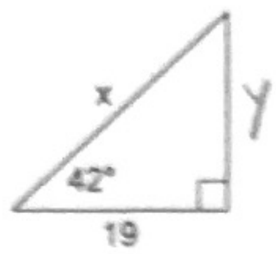
9)



$\sin 49 = \frac{x}{18}$

$x = 13.59$

10)



x 57

$\cos 42 = \frac{19}{x}$

$\frac{x}{1} \cdot .743 = \frac{19}{x} \frac{x}{1}$

$x = 25.57$

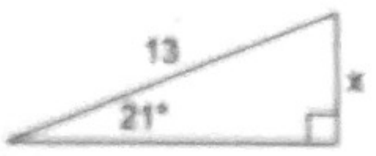
y 21.21

$\tan 42 = \frac{y}{19}$

$.900 = \frac{y}{19}$

$y = 17.11$

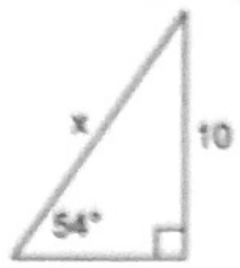
11)



$\sin 21 = \frac{x}{13}$

$x = 4.66$

12)



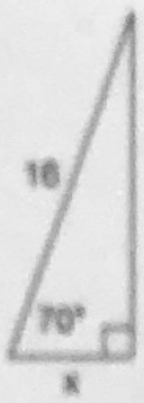
$\sin 54 = \frac{10}{x}$

$\frac{x}{1} \cdot .809 = \frac{10}{x} \cdot \frac{x}{1}$

$\frac{.809x}{.809} = \frac{10}{.809}$

$x = 12.36$

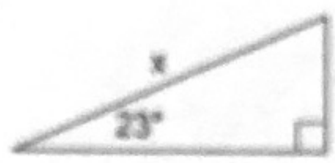
13)



$\cos 70 = \frac{x}{16}$

$x = 5.47$

14)



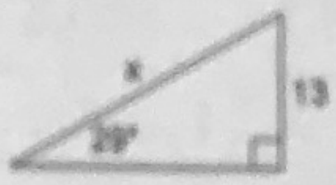
$\sin 23 = \frac{16}{x}$

$\frac{x}{1} \cdot .3907 = \frac{16}{x} \frac{x}{1}$

$\frac{.3907x}{.3907} = \frac{16}{.3907}$

$x = 40.95$

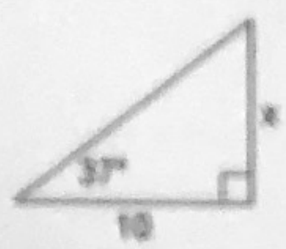
15)



$\sin 29 = \frac{13}{x}$

$x = 26.82$

16)



$\tan 37 = \frac{x}{10}$

$x = 7.54$

D2 p 475 # 3-6, 7-10

(3) $x = 7\sqrt{2}$

(4) $x = 5\sqrt{2} \cdot \sqrt{2}$

$= 5\sqrt{4} = \boxed{10}$

(5) $x = 3$

(6) $x\sqrt{2} = 9$

$x = \frac{9}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \boxed{\frac{9\sqrt{2}}{2}}$

(7) $x = 9\sqrt{3}$

$y = 18$

(8) $x = 3$

$y = 6$

(9) $y = 12$

$x = 12\sqrt{3}$

(10) $2y = 12\sqrt{3}$

$y = 6\sqrt{3}$

$x = 6\sqrt{3} \cdot \sqrt{3}$

$6\sqrt{9} = \boxed{18}$

D3 9.4 & 9.5 p491 # 3-6
p498 # 3-16

p491

(3) $\tan R = \frac{45}{28}$ $\tan S = \frac{28}{45}$

(4) $\tan D = \frac{7}{24}$ $\tan F = \frac{24}{7}$

(5) $\tan H = \frac{1}{2}$ $\tan G = \frac{2}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$

(6) $\tan J = \frac{5}{3}$ $\tan K = \frac{3}{5}$

p498

(3) $\sin D = \frac{12}{15}$ $\sin E = \frac{9}{15}$
$\cos D = \frac{9}{15}$ $\cos E = \frac{12}{15}$

(4) $\sin D = \frac{35}{37}$ $\sin E = \frac{12}{37}$
$\cos D = \frac{12}{37}$ $\cos E = \frac{35}{37}$

(5) $\sin D = \frac{28}{53}$ $\sin E = \frac{45}{53}$
$\cos D = \frac{45}{53}$ $\cos E = \frac{28}{53}$

(6) $\sin D = \frac{36}{45}$ $\sin E = \frac{27}{45}$
$\cos D = \frac{27}{45}$ $\cos E = \frac{36}{45}$

(9) .6018 cos 53

(10) sin 81 = .9877 cos 9

(11) sin 29 = .4848 cos 61

(12) sin 64 = .8988 cos 26

(13) cos 59 = .5150
sin 31

(14) cos 42 = .7431
sin 48

(15) cos 73 = .2924
sin 17

(16) cos 18 = .9511
sin 72

D4 p 491 #7-10 p498 #17-22

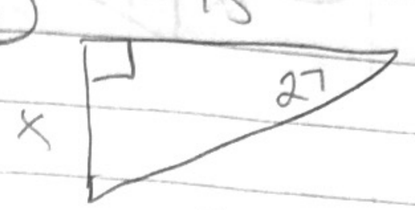
(7) SOH CAH TOA

$\tan 41 = \frac{X}{12}$

$.8693 = \frac{X}{12}$

$X = 10.43$

(8)



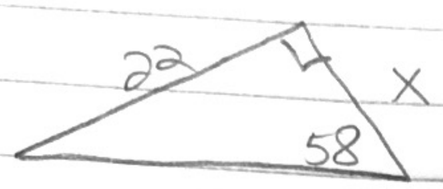
SOHCAH TOA

$\tan 27 = \frac{X}{15}$

$.5095 = \frac{X}{15}$

$X = 7.64$

(9)



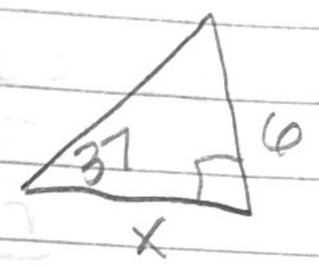
$\tan 58 = \frac{22}{X}$

$\frac{X}{1}\ 1.600 = \frac{22}{X} \cdot \frac{X}{1}$

$1.600X = 22$

$X = 13.75$

(10)



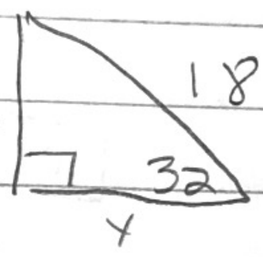
$\tan 37 = \frac{6}{X}$

$\frac{X}{1} \cdot .7536 = \frac{6}{X} \cdot \frac{X}{1}$

$\frac{.7536X}{.7536} = \frac{6}{.7536}$

$X = 7.96$

(11)



X

$\sin 32 = \frac{X}{18}$

$.5299 = \frac{X}{18}$

$X = 9.54$

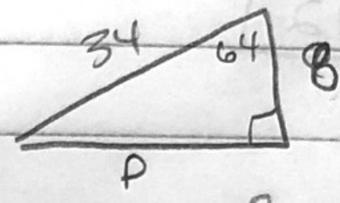
Y

$\cos 32 = \frac{Y}{18}$

$.8481 = \frac{Y}{18}$

$Y = 15.26$

(18)



P

$\sin 64 = \frac{P}{34}$

$.8988 = \frac{P}{34}$

$P = 30.56$

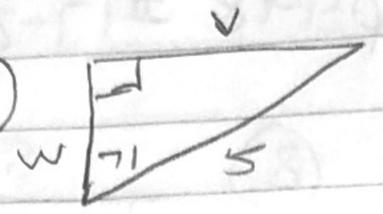
Q

$\cos 64 = \frac{Q}{34}$

$.4384 = \frac{Q}{34}$

$Q = 14.90$

(19)



v: $\sin 71 = \frac{v}{5}$

$.9455 = \frac{v}{5}$

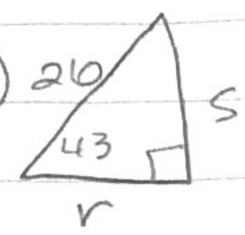
$v = 4.73$

w: $\cos 71 = \frac{w}{5}$

$.3256 = \frac{w}{5}$

$w = 1.63$

(20)



r: $\cos 43 = \frac{r}{26}$

$.7314 = \frac{r}{26}$

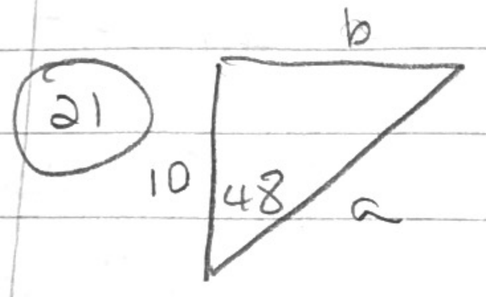
$r = 19.02$

s: $\sin 43 = \frac{s}{26}$

$.6820 = \frac{s}{26}$

$s = 17.73$

(21)



a: $\cos 48 = \frac{10}{a}$

$.6691 = \frac{10}{a}$

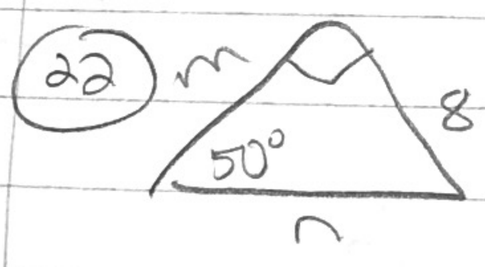
$a = 14.95$

b: $\tan 48 = \frac{b}{10}$

$1.111 = \frac{b}{10}$

$b = 11.11$

(22)



m: $\tan 50 = \frac{8}{m}$

$\frac{m}{1} \cdot 1.19 = \frac{8}{m} \cdot \frac{m}{1}$

$\frac{1.19m}{1.19} = \frac{8}{1.19}$

$m = 6.72$

n: $\sin 50 = \frac{8}{n}$

$\frac{n}{1} \cdot .766 = \frac{8}{n} \cdot \frac{n}{1}$

$\frac{.766n}{.766} = \frac{8}{.766}$

$n = 10.44$

Chap9 D1

Chap9 p468 #3-10, 21-27 odd

(3) $7^2+11^2=x^2$

$49+121=x^2$

$170=x^2$

$X=13.04$

Not Triple

(4) $16^2+30^2=x^2$

$256+900=x^2$

$x^2=1156$

$X=34$

yes TRIPLE

(5) $9^2+40^2=x^2$

$81+1600=x^2$

$X=41$ yes

Triple

(6) $4^2+6^2=x^2$

$16+36=x^2$

$x=7.2$

not triple

(7) $8^2+x^2=17^2$

$64+x^2=289$

$x^2=225$

$X=15$

yes TRIPLE

(8) $x^2+9^2=24^2$

$x^2+81=576$

$x^2=495$

$X=22.25$

NOT triple

(9) $x^2+48^2=50^2$

$x^2+2304=2500$

$x^2=196$

$x=14$ yestriple

(10) $7^2+x^2=9^2$

$49+x^2=81$ yes

$x^2=32$ triple

$x=5.66$

(21) $10^2+11^2 \square 14^2$

$100+121 \square 196$

$221 > 196$

acute

$a^2+b^2<c^2$ obtuse

$a^2+b^2>c^2$ acute

(23) $12^2+16^2 \square 20^2$

$144+256 \square 400$

RIGHT $400=400$

(25) $(5.3)^2+(6.7)^2 \square (7.8)^2$

$28.09+44.89 \square 60.84$

ACUTE $72.98 > 60.84$

(27) $24^2+30^2 \square 6\sqrt{43}$

$576+900 \square 1548$

$1476 < 1548$

OBTUSE

Chap9 D1

Chap9 p468 #3-10, 21-27 odd

(3) $7^2+11^2=x^2$
$49+121=x^2$
$170=x^2$
$X=13.04$
Not Triple

(4) $16^2+30^2=x^2$
$256+900=x^2$
$x^2=1156$
$X=34$
yes TRIPLE

(5) $9^2+40^2=x^2$
$81+1600=x^2$
$X=41$ yes
Triple

(6) $4^2+6^2=x^2$
$16+36=x^2$
$X=7.2$
not triple

(7) $8^2+x^2=17^2$
$64+x^2=289$
$x^2=225$
$X=15$
yes TRIPLE

(8) $x^2+9^2=24^2$
$x^2+81=576$
$x^2=495$
$X=22.25$
NOT tr

(9) $x^2+48^2=50^2$
$x^2+2304=2500$
$x^2=196$
$X=14$ yestriple

(10) $7^2+x^2=9^2$
$49+x^2=81$
$x^2=32$
$X=5.6$

(21) $10^2+11^2 \square 14^2$
$100+121 \square 196$
$221 > 196$
acute

$a^2+b^2<c^2$ obtuse
$a^2+b^2>c^2$ acute

(23) $12^2+16^2 \square$
$144+256 \square$
RIGHT $400=$

(25) $(5.3)^2+(6.7)^2 \square (7.8)^2$
$28.09+44.89 \square 60.84$
Acute $72.98 > 60.84$

(27) 24^2+30
$576+90$
147