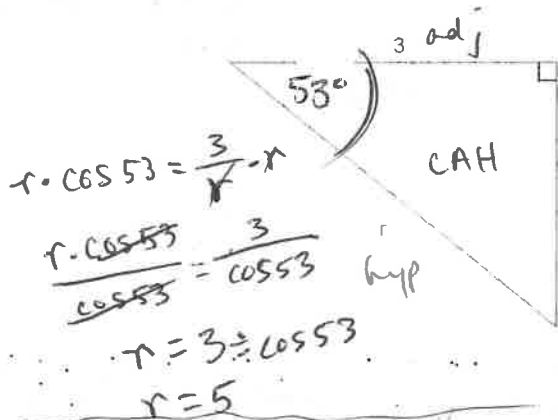


Name: KEY

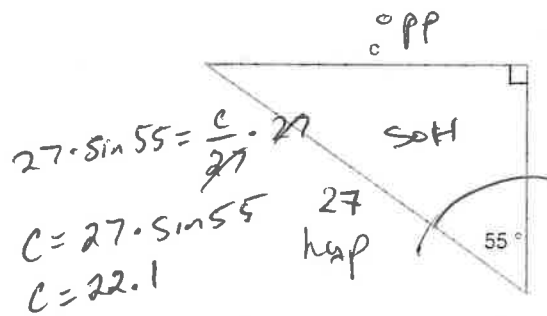
**Final Exam Review Pack – Section 4**

Find the side indicated by the variable. Round to the nearest tenth.

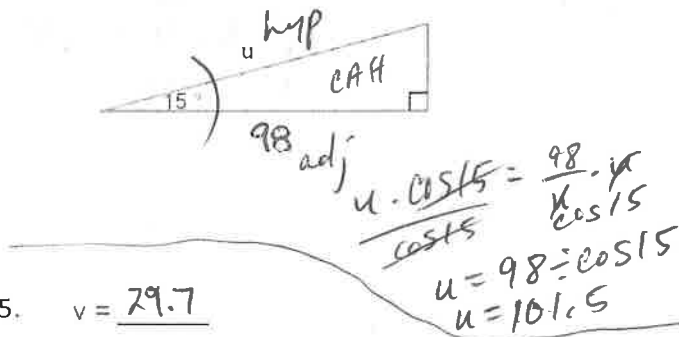
1.  $r = \underline{5}$



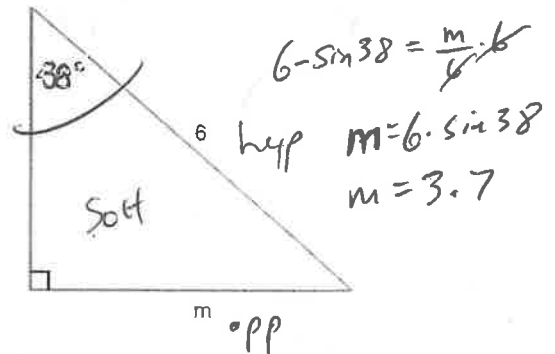
2.  $c = \underline{22.1}$



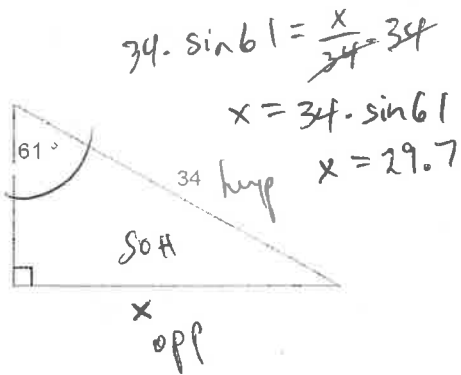
3.  $u = \underline{101.5}$



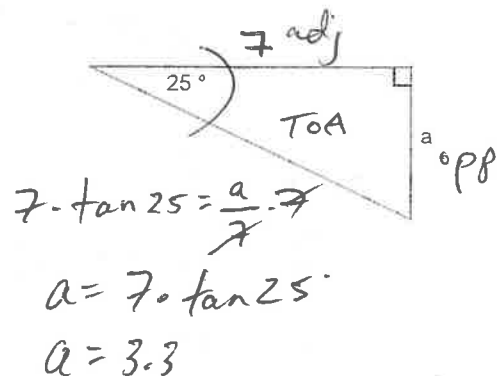
4.  $m = \underline{3.7}$



5.  $v = \underline{29.7}$

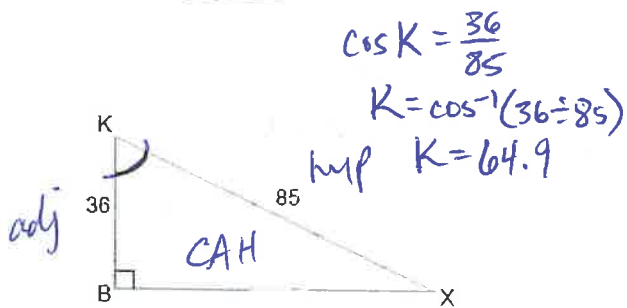


6.  $a = \underline{3.3}$

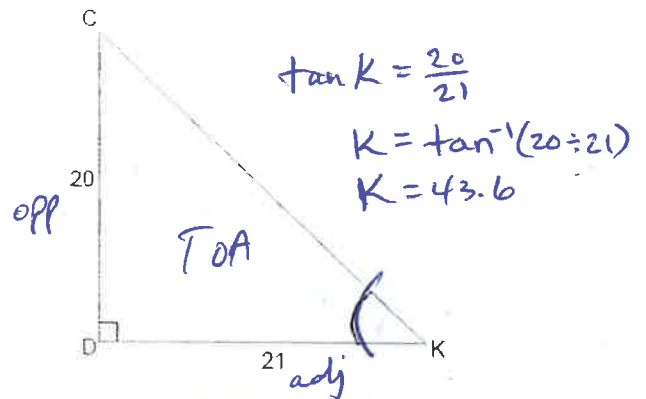


Find the measure of the indicated angle to the nearest degree.

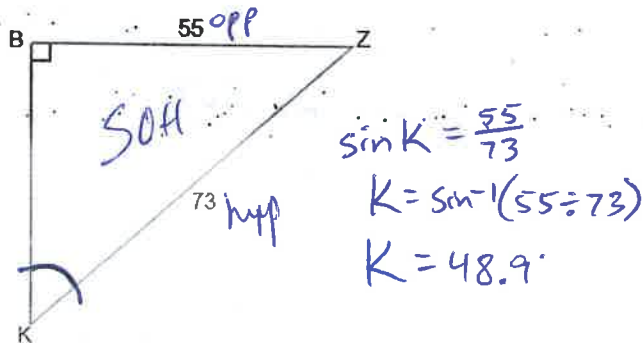
1)  $m\angle K = \underline{65}^\circ$



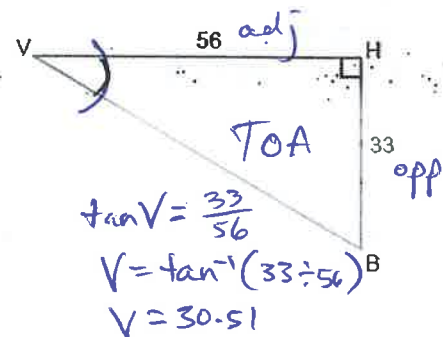
2)  $m\angle K = \underline{44}^\circ$



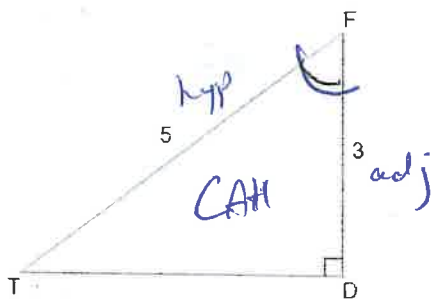
3)  $m\angle K = \underline{49}^\circ$



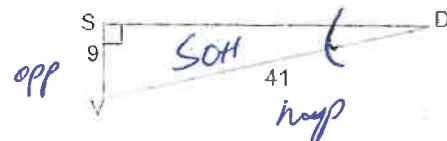
4)  $m\angle V = \underline{31}^\circ$



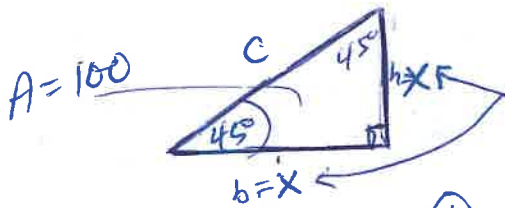
5)  $m\angle F = \underline{53}^\circ$



6)  $m\angle D = \underline{13}^\circ$



19. The area of a right angle triangle is 100. One of the angles is  $45^\circ$ . Find the lengths of the legs and the hypotenuse of the triangle, round to the nearest tenth.



because angles are equal (both  $45^\circ$ ) both sides will be equal (call both  $x$ ).

$$\textcircled{1} A = \frac{b \times h}{2}$$

$$2 \cdot 100 = \frac{x \cdot x}{2} \cdot 2$$

$$\sqrt{200} = \sqrt{x^2}$$

$$\textcircled{2} c^2 = a^2 + b^2$$

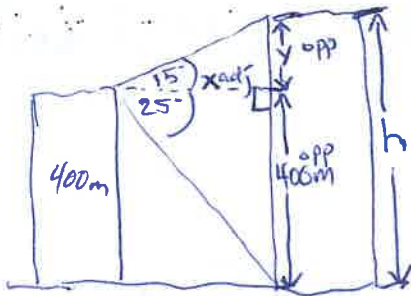
$$c^2 = 14.1^2 + 14.1^2$$

$$\sqrt{c^2} = \sqrt{397.62}$$

$$c = 19.9 \text{ } \therefore \text{hypotenuse is } 19.9$$

$\therefore$  both legs are 14.1

20. From the top of a 400 meters high building, the angle of depression to the bottom of a second building is 25 degrees. From the bottom of the building, the angle of elevation to the top of the second building is 15 degrees. Calculate the height of the second building to the nearest meter.



$$\textcircled{1} \tan 25 = \frac{400}{x}$$

$$x = 400 \div \tan 25$$

$$x = 857.8 \text{ m}$$

$$\textcircled{2} \tan 15 = \frac{y}{857.8}$$

$$y = 857.8 \cdot \tan 15$$

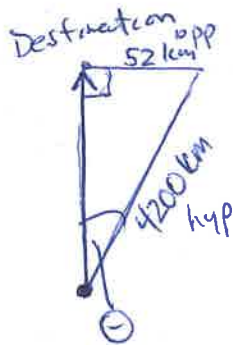
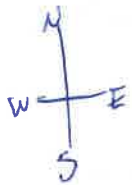
$$y = 229.8 \text{ m}$$

$$\textcircled{3} h = 400 + y$$

$$h = 400 + 229.8$$

$$h = 629.8 \text{ m}$$

21. After an hour of flying, a jet has covered 4200km, but winds have blown it off course. The instruments on the plane show that it is 52km East of the planned flight path. By how many degrees is the plane off course?



$$\sin \theta = \frac{52}{4200}$$

$$\theta = \sin^{-1}(52 \div 4200)$$

$$\theta = 0.71^\circ$$

$\therefore$  approximately  $1^\circ$  east of planned flight path.

Find the variable side. Round the intermediate and final values to the nearest tenth.

1)  $s = 68.3$  in      $S = x + y$   
 $S = 28.5 + 39.8$

①  $\sin 27 = \frac{h}{32}$   
 $h = 32 \cdot \sin 27$   
 $h = 14.5$  in

②  $\cos 27 = \frac{x}{32}$   
 $x = 32 \cdot \cos 27$   
 $x = 28.5$  in

③  $\tan 20 = \frac{14.5}{y}$   
 $y = 14.5 \div \tan 20$   
 $y = 39.8$  in

2)  $b = 118.7$  cm

①  $\tan 53 = \frac{h}{50}$   
 $h = 50 \cdot \tan 53$   
 $h = 66.4$  cm

②  $\sin 34 = \frac{66.4}{b}$   
 $b = 66.4 \div \sin 34$   
 $b = 118.7$  cm

3)  $h = 22.7$  ft

①  $\sin 60 = \frac{x}{15}$   
 $x = 15 \cdot \sin 60$   
 $x = 13$  ft

②  $\sin 35 = \frac{13}{h}$   
 $h = 13 \div \sin 35$   
 $h = 22.7$  ft

4)  $d = 13.3$  in

①  $\sin 23 = \frac{h}{28}$   
 $h = 28 \cdot \sin 23$   
 $h = 10.9$  in

②  $\sin 55 = \frac{10.9}{d}$   
 $d = 10.9 \div \sin 55$   
 $d = 13.3$

$180 - 102 - 23 = 55^\circ$

Find the area of each triangle. Round the intermediate and final values to the nearest tenth.

5) Area =  $2450.8$  mm<sup>2</sup>

⑤  $A = \frac{1}{2} \times b \times h$   
 $= \frac{6 \times 4}{2}$   
 $= \frac{111.4 \times 44}{2}$   
 $= 2450.8$

$180 - 101 - 47 = 32^\circ$

①  $\sin 32 = \frac{h}{83}$   
 $h = 83 \cdot \sin 32$   
 $h = 44$  mm

②  $\cos 32 = \frac{b_1}{83}$   
 $b_1 = 83 \cdot \cos 32$   
 $b_1 = 70.4$  mm

③  $\tan 47 = \frac{44}{b_2}$   
 $b_2 = 44 \div \tan 47$   
 $b_2 = 41$  mm

④  $b = b_1 + b_2$   
 $b = 70.4 + 41$   
 $b = 111.4$  mm

6) Area =  $9547.6$  yd<sup>2</sup>

④  $A = \frac{b \times h}{2}$   
 $= \frac{147 \times 129.9}{2}$   
 $= 9547.6$

①  $\tan 61 = \frac{h}{72}$   
 $h = 72 \cdot \tan 61$   
 $h = 129.9$

②  $\tan 60 = \frac{129.9}{x}$   
 $x = 129.9 \div \tan 60$   
 $x = 75$  yds

③  $b = 75 + 72$   
 $b = 147$  mm