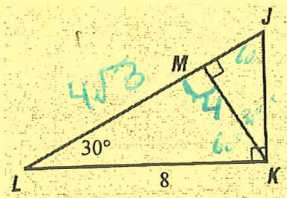


General Geometry CH 7 Review (Give answers as simplified radical **and** to nearest tenth)

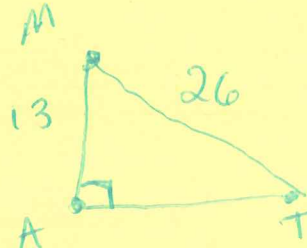
NAME Key HR \_\_\_\_\_ DATE \_\_\_\_\_

1. Find MK, JK, and ML.



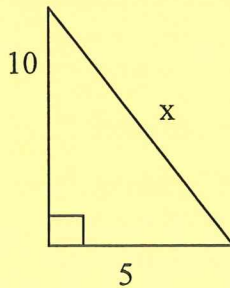
$MK = 4$   
 $ML = 4\sqrt{3} \approx 6.9$   
 $JK = \frac{8}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{8\sqrt{3}}{3} \approx 4.6$

5. In right triangle MAT, A is the right angle. Side MA = 13 and side MT = 26. Find AT. (Draw it!)



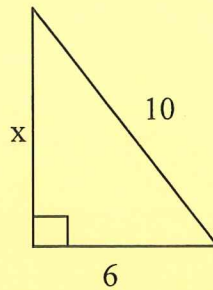
$13^2 + b^2 = 26^2$   
 $169 + b^2 = 676$   
 $b^2 = 507$   
 $b \approx 22.5$   
 $b = 13\sqrt{3}$

6. Find x.



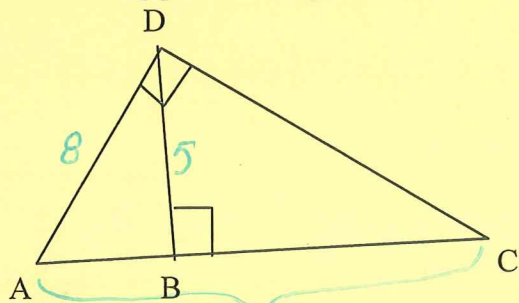
$a^2 + b^2 = c^2$   
 $10^2 + 5^2 = c^2$   
 $100 + 25 = c^2$   
 $\sqrt{125} = \sqrt{c^2}$

7. Find x.



$5\sqrt{5} = c$   
 $11.2 \approx c$   
 $a^2 + b^2 = c^2$   $(x=8)$   
 $x^2 + 6^2 = 10^2$   
 $x^2 + 36 = 100$   
 $x^2 = 64$

Use the following picture for questions 2&3:



$a^2 + b^2 = c^2$   $9$   
 $8^2 + b^2 = 9^2$   
 $64 + b^2 = 81$   
 $b^2 = 17$   
 $b = 4.1$

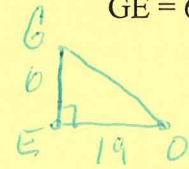
2. If AD= 8 and AC= 9, find DC.

$\sqrt{17} \approx 4.1$

3. Given DB = 5 and AC = 13. Find the area of  $\triangle ADC$ .

$\frac{1}{2} \cdot 5 \cdot 13$   
 $32.5$

4. In right triangle GEO, E is the right angle. Side GE = 6 and side EO = 19. Find GO. Draw it.



$a^2 + b^2 = c^2$   
 $6^2 + 19^2 = c^2$   
 $36 + 361 = c^2$   
 $397 = c^2$   
 $\sqrt{397} = c$   
 $GO \approx 19.9$

8. Determine whether the following three numbers can be the sides of a right triangle. Show work!! (Answer Yes or No, but show work!)

6, 10, 8  
 $6^2 + 8^2 = 10^2$   
 $36 + 64 = 100$   
 $100 = 100 \checkmark$   
 Yes

9. Is the triangle in #8 a Pythagorean Triple? Why or why not?

yes  
 Pythagorean Triple  
 because it is a right triangle w/ all whole #s

10. Determine whether the following three numbers can be the sides of a right triangle. Show work!! (Answer Yes or No, but show work!)

$\sqrt{6}, \sqrt{13}, \sqrt{7}$

$\sqrt{6}^2 + \sqrt{7}^2 = \sqrt{13}^2$   
 $6 + 7 = 13$   
 $13 = 13 \checkmark$  **yes**

11. Is the triangle in #10 a Pythagorean Triple? Why or why not?

**No, right triangle but not whole #'s**

12. Is the triangle with the following vertices a right triangle? (Show work!)

A (-3, 6) B (5, 5) C (3, 2)

$AB = \sqrt{(5+3)^2 + (5-6)^2}$   $BC = \sqrt{(5-3)^2 + (5-2)^2}$

$\sqrt{(8)^2 + (-1)^2}$

$= \sqrt{(2)^2 + (3)^2}$

$\sqrt{64+1}$

$\sqrt{4+9}$

$\sqrt{65}$

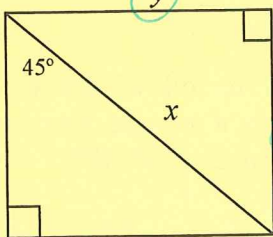
$\sqrt{13}$

$AC = \sqrt{(3+3)^2 + (2-6)^2}$

$\sqrt{52 + 13} = \sqrt{65}$   
 $52 + 13 = 65$   
 $65 = 65 \checkmark$

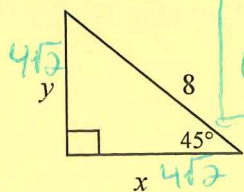
$= \sqrt{36+16}$   
 $= \sqrt{52}$

13. Find x and y.



$1:1:\sqrt{2}$   
 $y=4$   
 $x=4\sqrt{2}$

14. Find x and y.



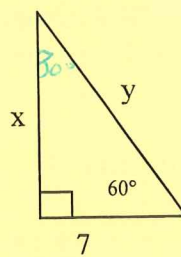
$1:1:\sqrt{2}$   
 $x = 4\sqrt{2}$   
 $y = 4\sqrt{2}$

$\frac{8}{\sqrt{2}} \frac{\sqrt{2}}{\sqrt{2}}$   
 $\frac{8\sqrt{2}}{2}$   
 $4\sqrt{2}$

15. Find x and y.

$1:\sqrt{3}:2$   
 $\times 7 \times 7 \times 7$   
 $7:7\sqrt{3}:14$

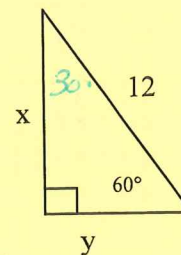
$x = 7\sqrt{3}$   
 $y = 14$



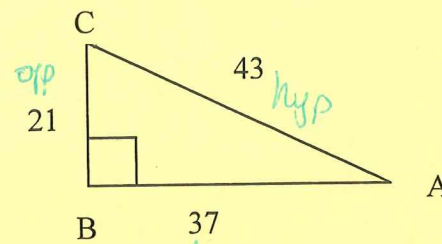
16. Find x and y.

$1:\sqrt{3}:2$   
 $\times 6 \times 6 \times 6$   
 $6:6\sqrt{3}:12$

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



17. Find sinA, cosA, and tan A. (Give your answers as fractions.)

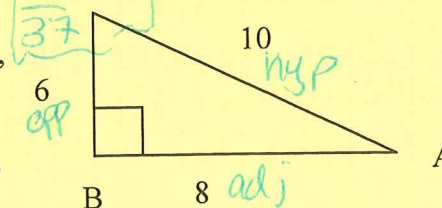


$\sin A = \frac{\text{opp}}{\text{hyp}} = \frac{21}{43}$

$\cos A = \frac{\text{adj}}{\text{hyp}} = \frac{37}{43}$

$\tan A = \frac{\text{opp}}{\text{adj}} = \frac{21}{37}$

18. Find sinA, cosA, and tan A. (Give your answers as reduced fractions.)



$\sin A = \frac{6}{10} = \frac{3}{5}$

$\cos A = \frac{8}{10} = \frac{4}{5}$

$\tan A = \frac{6}{8} = \frac{3}{4}$

19. Use a calculator to find the cos 47° (round to the nearest ten-thousandth).

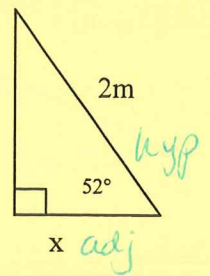
$$\cos(47) = \boxed{.6820}$$

25. Find x.

$$\cos(52) = \frac{x}{2}$$

$$2 \cdot \cos(52) = x$$

$$\boxed{1.2 = x}$$



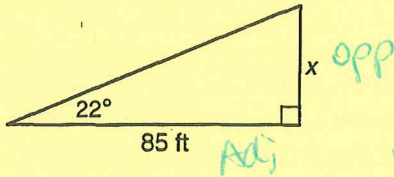
20. Use a calculator to find the angle whose tangent is 2.0503 (round to the nearest degree).

$$\tan^{-1}(2.0503)$$

$$\boxed{64}$$

For the remainder of the problems, round to the nearest tenth.

21. Find x



$$85 \cdot \tan(22) = \frac{x}{85} \cdot 85$$

$$85 \cdot \tan(22) = x$$

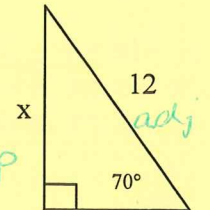
$$\boxed{x = 34.3}$$

26. Find x.

$$\sin(70) = \frac{x}{12}$$

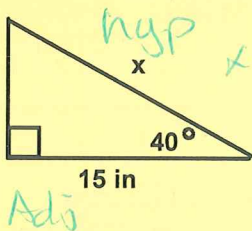
$$12 \cdot \sin(70) = x$$

$$\boxed{11.3 = x}$$



Soh CAH TOA

22. Find x



$$x \cdot \cos(40) = \frac{15}{x} \cdot x$$

$$\frac{x \cdot \cos(40)}{\cos(40)} = \frac{15}{\cos(40)}$$

$$x = \frac{15}{\cos(40)}$$

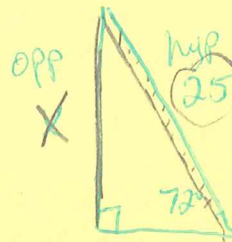
$$\boxed{x = 19.6}$$

27. When a 25-ft ladder is leaned against a wall, it makes a 72° angle with the ground. How high up on the wall does the ladder reach? \* You must draw a picture!\*

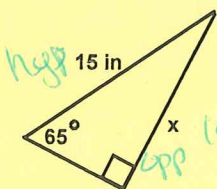
$$25 \cdot \sin(72) = \frac{x}{25} \cdot 25$$

$$25 \cdot \sin(72) = x$$

$$\boxed{23.8 = x}$$



23. Find x

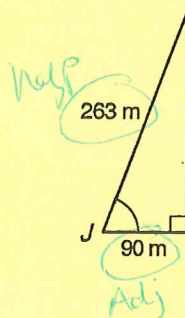


$$15 \cdot \sin(65) = \frac{x}{15} \cdot 15$$

$$15 \cdot \sin(65) = x$$

$$\boxed{13.6 = x}$$

28. Find J

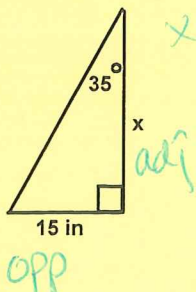


$$\cos(x) = \frac{90}{263}$$

$$\cos^{-1}\left(\frac{90}{263}\right)$$

$$\boxed{x = 70^\circ}$$

24. Find x

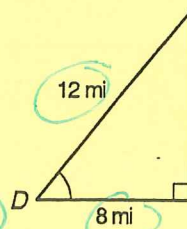


$$x \cdot \tan(35) = \frac{15}{x} \cdot x$$

$$\frac{x \cdot \tan(35)}{\tan(35)} = \frac{15}{\tan(35)}$$

$$x = \frac{15}{\tan(35)} = \boxed{21.4}$$

29. Find D

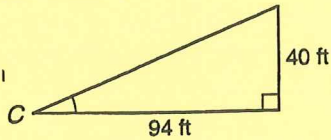


$$\cos(x) = \frac{8}{12}$$

$$\cos^{-1}\left(\frac{8}{12}\right)$$

$$\boxed{48^\circ}$$

30. Find C

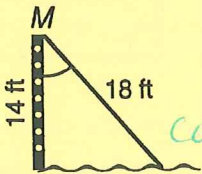


$$\tan(x) = \frac{40}{94}$$

$$\tan^{-1}(\tan(x)) = \tan^{-1}\left(\frac{40}{94}\right)$$

$$x = 23^\circ$$

31. The top of an 18-ft waterslide is 14 ft above the ground. What angle does the slide make with the vertical ladder?

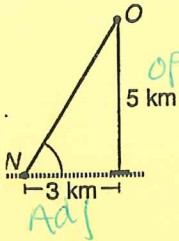


$$\cos(x) = \frac{14}{18}$$

$$\cos^{-1}(x) = \cos^{-1}\left(\frac{14}{18}\right)$$

$$= 39^\circ$$

32. Tracking a Rocket Launch. At what angle must a camera at point N be aimed to photograph a rocket at point O?



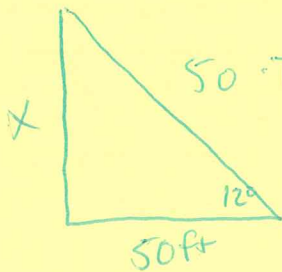
$$\tan(N^\circ) = \left(\frac{5}{3}\right)$$

$$\tan^{-1}(\tan(N^\circ)) = \tan^{-1}\left(\frac{5}{3}\right)$$

$$N^\circ = 59^\circ$$

33. A boy standing 50 feet from a telephone pole is looking up at a bird on top of the pole. The angle of elevation from the boy to the bird is 12 degrees. Find the height of the telephone pole. (Draw it!)

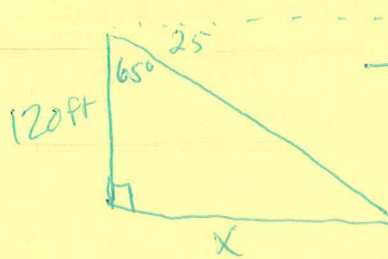
$$50 \cdot \tan(12^\circ) = \frac{x}{50}$$



$$50 \cdot \tan(12^\circ) = x$$

$$10.6 \text{ ft} = x$$

34. The angle of depression from the top of a lighthouse to a ship is 25 degrees. If the lighthouse is 120ft tall, find the distance from the ship to the base of the lighthouse (draw a picture!).

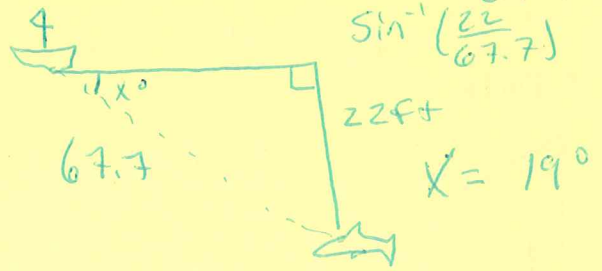


$$\tan(65^\circ) = \frac{x}{120}$$

$$120 \cdot \tan(65^\circ) = x$$

$$257.3 = x$$

35. A great white shark swims 22 feet below sea level. If the shark is 67.7 feet from the sailboat, what is the angle of depression of the boat to the shark? (Draw it!)

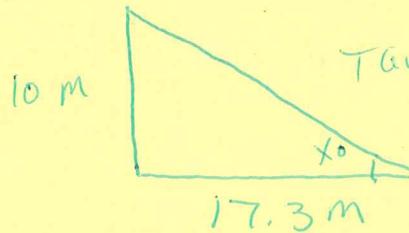


$$\sin(x) = \frac{22}{67.7}$$

$$\sin^{-1}\left(\frac{22}{67.7}\right)$$

$$x = 19^\circ$$

36. A tree 10 meters high casts a 17.3 meter shadow. Find the angle of elevation of the sun. (Draw it!)



$$\tan(x^\circ) = \frac{10}{17.3}$$

$$\tan^{-1}\left(\frac{10}{17.3}\right)$$

$$x = 30^\circ$$

37. Find the area. Include units.

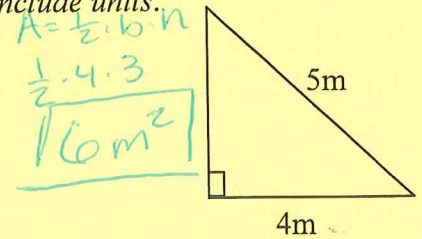
$$a^2 + b^2 = c^2$$

$$4^2 + b^2 = 5^2$$

$$16 + b^2 = 25$$

$$b^2 = 9$$

$$b = 3$$

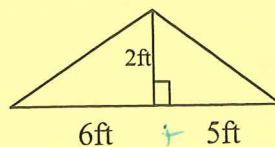


$$A = \frac{1}{2} \cdot b \cdot h$$

$$\frac{1}{2} \cdot 4 \cdot 3$$

$$6 \text{ m}^2$$

38. Find the area. Include units.



$$\frac{1}{2} \cdot b \cdot h$$

$$\frac{1}{2} \cdot 11 \cdot 2$$

$$11 \text{ ft}^2$$