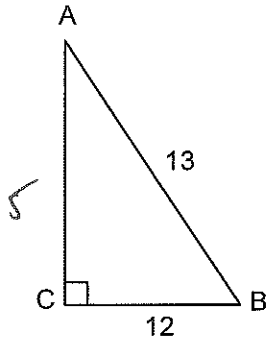
Honors Geometry Practice

Key (All ans. rounded to tenth)

1. Define the following trig ratios:



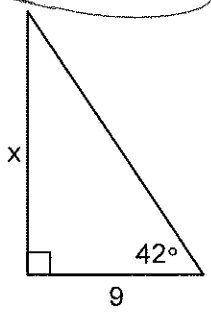

sin ∠A: $\frac{12}{13}$ sin ∠B: $\frac{5}{13}$

cos ∠A: $\frac{5}{13}$ cos ∠B: $\frac{12}{13}$

tan ∠A: $\frac{12}{5}$ tan ∠B: $\frac{5}{12}$

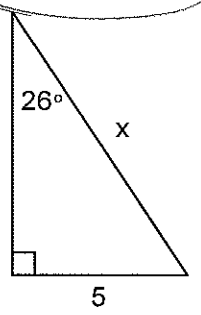
2. Solve for x in each of the following problems.

a.) $x = 8.1$



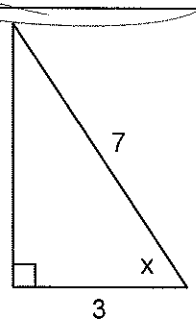

$\tan 42^\circ = \frac{x}{9}$

b.) $x = 11.4$



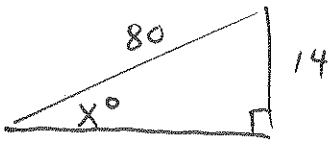

$\sin 26^\circ = \frac{5}{x}$

c.) $x = 64.6^\circ$



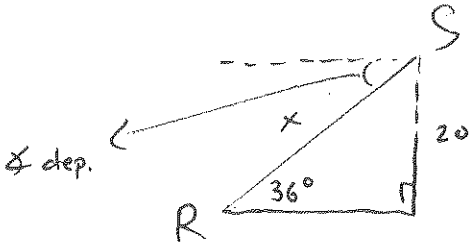

$\cos x^\circ = \frac{3}{7}$

3. An escalator is 80 feet long. It rises a vertical distance of 14 feet. Find the measure of the angle of elevation.



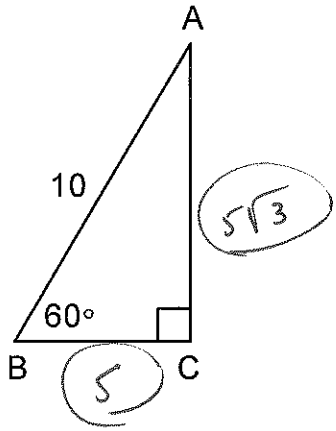

$\sin x^\circ = \frac{14}{80}$ ; $x = 10.0^\circ$

4. Santa Clause is standing on a rooftop when he notices that his reindeer have flown down to nibble on the grass below. The angle of depression from Santa to Rudolph is 36°. If the house is 20 feet tall, calculate the distance from Santa to Rudolph.




$\sin 36^\circ = \frac{20}{x}$ ; $x = 34.0^\circ$

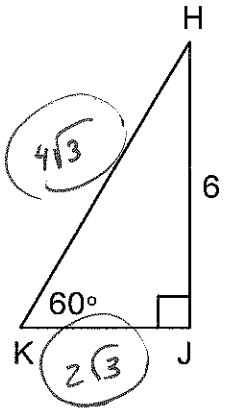
5. Find BC and AC.



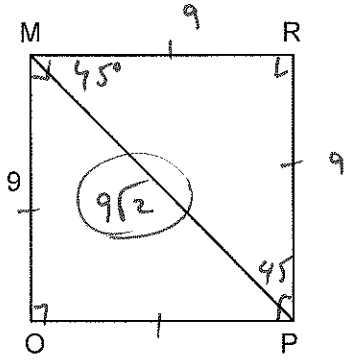

6. Find JK and HK.

6 = leg √3

2√3 = leg



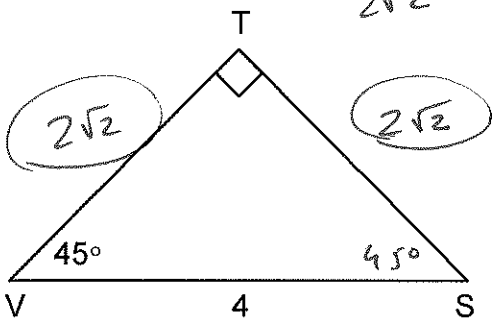

7. Given: MOPR is a square
Find MP.



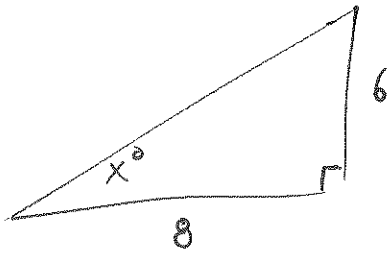

8. Find ST and TV.

4 = leg √2

2√2 = leg

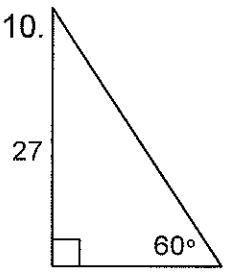



9. Find the measure of the angle of elevation from the sun when a 6-foot vertical post casts a shadow 8 feet long.



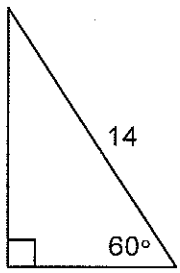

$\tan x^\circ = \frac{6}{8}$ ; $x = 36.9^\circ$

10.




$9\sqrt{3}$

11.

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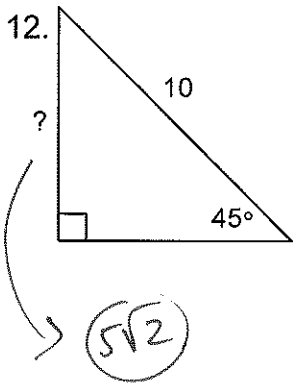
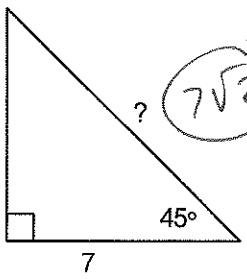
12.



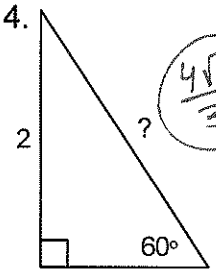

$5\sqrt{2}$

13.



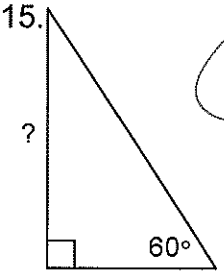

$7\sqrt{2}$

14.




$\frac{4\sqrt{3}}{3}$

15.

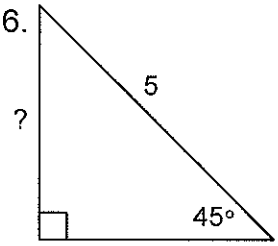



$4\sqrt{3}$

$2\sqrt{4}$

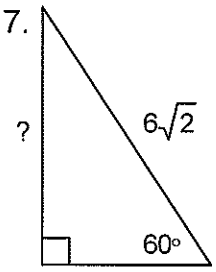
$2 \cdot 2 = 4$

16.




$\frac{5\sqrt{2}}{2}$

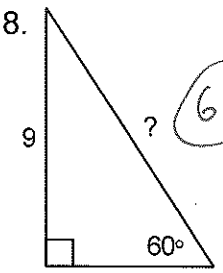
17.




$3\sqrt{2} \cdot \sqrt{3}$

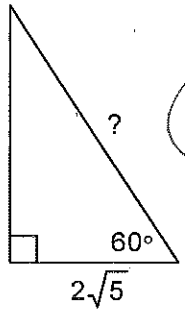
$3\sqrt{6}$

18.



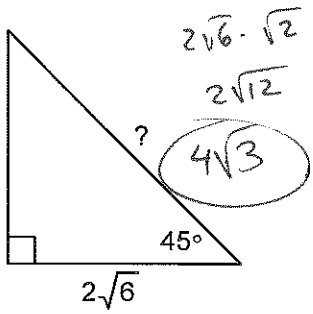

$6\sqrt{3}$

19.




$4\sqrt{5}$

20.

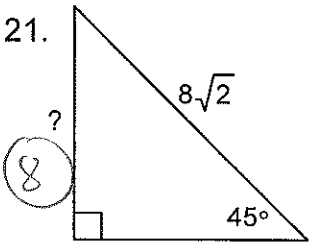



$2\sqrt{6} \cdot \sqrt{2}$

$2\sqrt{12}$

$4\sqrt{3}$

21.

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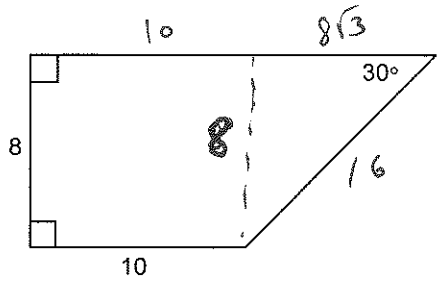
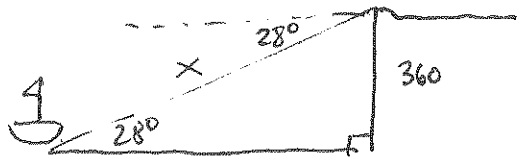
22. Find the perimeter of the trapezoid.



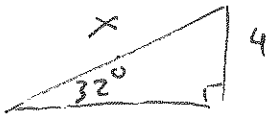

$P = 44 + 8\sqrt{3}$

23. To an observer on a cliff 360 m above sea level, the angle of depression of a ship is 28°. What is the distance between the ship and the cliff?



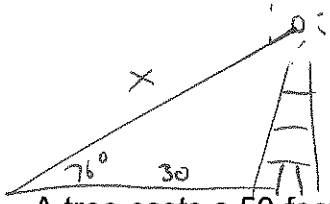

$\sin 28° = \frac{360}{x}$ ; $x = 766.8$ m

24. A ramp was built by a loading dock. The height of the loading platform is 4 feet. Determine the length of the ramp if it makes a 32° angle with the ground.



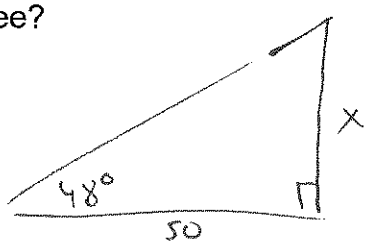

$\sin 32° = \frac{4}{x}$ ; $x = 7.5$ ft

25. A guy wire (support wire) from the top of a radio tower is anchored to the ground 30 ft from the tower's base. The angle of elevation to the top of the tower is 76°. How long is the guy wire?



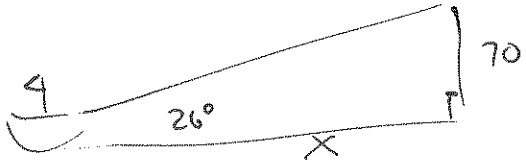

$\cos 76° = \frac{30}{x}$ ; $x = 124.0$ ft

26. A tree casts a 50-foot shadow while the angle of elevation of the sun is 48°. How tall is the tree?



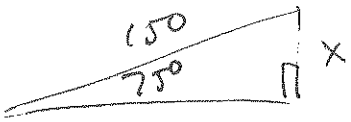

$\tan 48° = \frac{x}{50}$ ; $x = 55.5$ ft

27. The angle of elevation from a ship to the top of a 70-foot lighthouse on the coast measures 26°. How far from the coast is the ship?




$\tan 26° = \frac{70}{x}$ ; $x = 143.5$

28. A kite is flying at the end of a 150-foot string (straight). The string makes an angle of 75° with the ground. How high above the ground is the kite?




$\sin 75° = \frac{x}{150}$ ; $x = 144.9$ ft