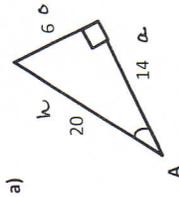


TRIGONOMETRY REVIEW

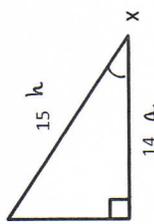
1. Find each value to 4 decimal places.

- a) $\sin 25^\circ = 0.4226$
 b) $\cos 7^\circ = 0.9925$
 c) $\tan 44^\circ = 0.9657$
2. Find the measure of the angle to the nearest degree.
 a) $\sin A = 0.3333$
 $\angle A = \sin^{-1}(0.3333)$
 $\angle A = 19^\circ$
- b) $\cos B = 0.0123$
 $\angle B = \cos^{-1}(0.0123)$
 $\angle B = 89^\circ$
- c) $\tan C = 0.8910$
 $\angle C = \tan^{-1}(0.8910)$
 $\angle C = 42^\circ$

3. For each triangle below, write three ratios for the marked angle. Do not solve.

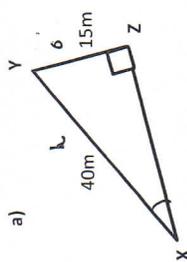


$\sin A = \frac{6}{20}$
 $\cos A = \frac{14}{20}$
 $\tan A = \frac{6}{14}$

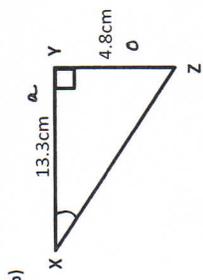


$\sin X = \frac{8}{15}$
 $\cos X = \frac{14}{15}$
 $\tan X = \frac{8}{14}$

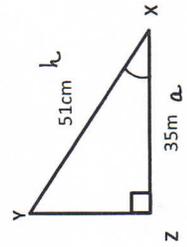
4. Find the measure of $\angle X$ to the nearest degree.



$\sin X = \frac{6}{40}$
 $\sin X = \frac{15}{40}$
 $\sin X = 0.375$
 $\angle X = \sin^{-1}(0.375)$
 $\angle X = 22^\circ$

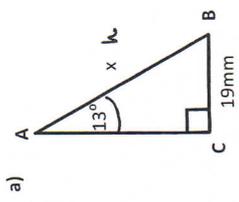


$\tan X = \frac{13.3}{4.8}$
 $\tan X = \frac{4.8}{13.3}$
 $\tan X = 0.3609$
 $\angle X = \tan^{-1}(0.3609)$
 $\angle X = 20^\circ$

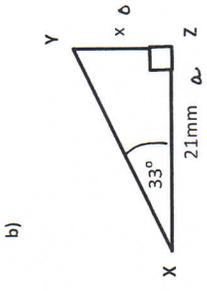


$\cos X = \frac{35}{62}$
 $\cos X = \frac{51}{62}$
 $\cos X = 0.6863$
 $\angle X = \cos^{-1}(0.6863)$
 $\angle X = 47^\circ$

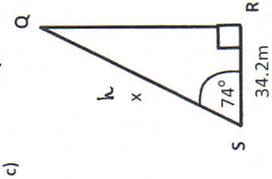
5. Find the length of the indicated side to one decimal place.



$\sin A = \frac{19}{x}$
 $\sin 13^\circ = \frac{19}{x}$
 $x \sin 13^\circ = 19$
 $x = \frac{19}{\sin 13^\circ}$
 $x = 84.5 \text{ mm}$



$\tan X = \frac{21}{x}$
 $\tan 33^\circ = \frac{21}{x}$
 $21 \tan 33^\circ = x$
 $x = 13.6 = x$

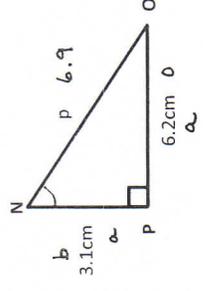


$\cos S = \frac{34.2}{x}$
 $\cos 74^\circ = \frac{34.2}{x}$
 $x \cos 74^\circ = 34.2$
 $x = \frac{34.2}{\cos 74^\circ}$
 $x = 124$

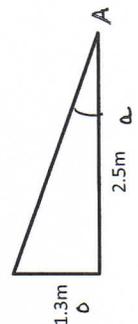
6. Use Pythagorean Theorem to find the length of the unknown side p to one decimal place first, then determine the measure of $\angle N$ using the trig ratio of your choice.

$p^2 = a^2 + b^2$
 $p^2 = (6.2)^2 + (3.1)^2$
 $p^2 = 38.44 + 9.61$
 $p^2 = 48.05$
 $p = 6.9$

$\tan N = \frac{6.9}{3.1}$
 $\tan N = 2.2258$
 $\angle N = \tan^{-1}(2.2258)$
 $\angle N = 63^\circ$

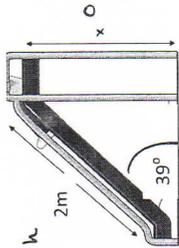


7. A skateboard ramp is built on an incline so that it rises 1.3m. What is the angle between the ground the diagonal space?



$\tan A = \frac{1.3}{2.5}$
 $\tan A = 0.52$
 $\angle A = \tan^{-1}(0.52)$
 $\angle A = 27^\circ$
 \therefore the angle is 27° .

8. A new slide has been put into the playground. The slide is 2m long and the incline of the slide to the ground is 39°. How high is the slide off the ground to 1 decimal place?



$$\sin 39^\circ = \frac{0}{h}$$

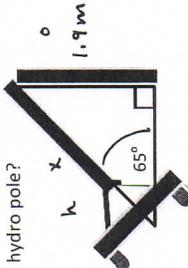
$$\sin 39^\circ = \frac{x}{2}$$

$$2 \sin 39^\circ = x$$

$$\boxed{1.3 = x}$$

∴ the slide is 1.3 m off the ground.

9. During a severe ice storm, a hydro pole was damaged and the top part of it broke off so it now touches the ground. The broken off piece forms a 65° angle to the ground. Before it was damaged, how tall was the hydro pole?



$$\sin 65^\circ = \frac{0}{h}$$

$$\sin 65^\circ = \frac{1.9}{x}$$

$$x \sin 65^\circ = 1.9$$

$$\boxed{x = 2.1}$$

∴ length of broken piece.

∴ length of entire pole is 4m.

$$2.1 + 1.9$$

$$= \boxed{4 \text{ m}}$$

11. A musician is on a stage during a concert. The musician is 1.7m tall, while the school stage is 1.5m tall. He is looking down at the first row at an angle of depression of 35°. How far is the stage from the first row of fans?

Let x rep. distance between stage and 1st row.

$$\tan 35^\circ = \frac{0}{a}$$

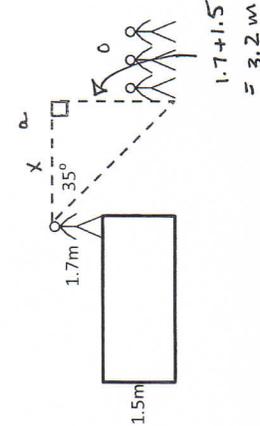
$$\tan 35^\circ = \frac{3.2}{x}$$

$$x \tan 35^\circ = 3.2$$

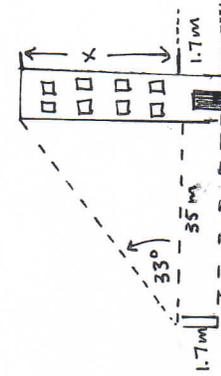
$$x = \frac{3.2}{0.7002}$$

$$\boxed{x = 4.6}$$

∴ the stage is 4.6 m from the first row.



12. A surveyor is trying to determine the height of a building using a 1.7m transit instrument. From a distance of 35m from the building she is found the angle of elevation to be 33°. What would she find to be the height of the building to one decimal? Draw a diagram to help with your solution.



$$\tan 33^\circ = \frac{0}{a}$$

$$\tan 33^\circ = \frac{x}{35}$$

$$35 \tan 33^\circ = x$$

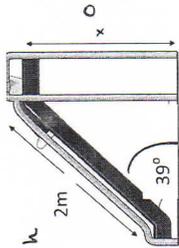
$$\boxed{22.7 = x}$$

Entire height of building = $x + 1.7$ m.
 $22.7 + 1.7$

∴ the total height of building is 24.4 m

$$= \boxed{24.4 \text{ m}}$$

8. A new slide has been put into the playground. The slide is 2m long and the incline of the slide to the ground is 39°. How high is the slide off the ground to 1 decimal place?



$$\sin 39^\circ = \frac{0}{h}$$

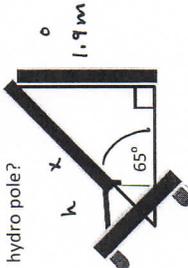
$$\sin 39^\circ = \frac{x}{2}$$

$$2 \sin 39^\circ = x$$

$$\boxed{1.3 = x}$$

∴ the slide is 1.3 m off the ground.

9. During a severe ice storm, a hydro pole was damaged and the top part of it broke off so it now touches the ground. The broken off piece forms a 65° angle to the ground. Before it was damaged, how tall was the hydro pole?



$$\sin 65^\circ = \frac{0}{h}$$

$$\sin 65^\circ = \frac{1.9}{x}$$

$$x \sin 65^\circ = 1.9$$

$$\boxed{x = 2.1}$$

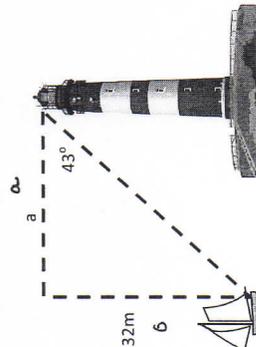
∴ length of broken piece.

∴ length of entire pole is 4m.

$$2.1 + 1.9$$

$$= \boxed{4 \text{ m}}$$

10. The angle of depression from the top of a lighthouse is 43°. The lighthouse is 32m tall. How far is the boat from the base of the lighthouse?



$$\tan 43^\circ = \frac{0}{a}$$

$$\tan 43^\circ = \frac{32}{a}$$

$$a \tan 43^\circ = 32$$

$$a = \frac{32}{0.9325}$$

$$\boxed{a = 34.3}$$

∴ the boat is 34.3 m from lighthouse.