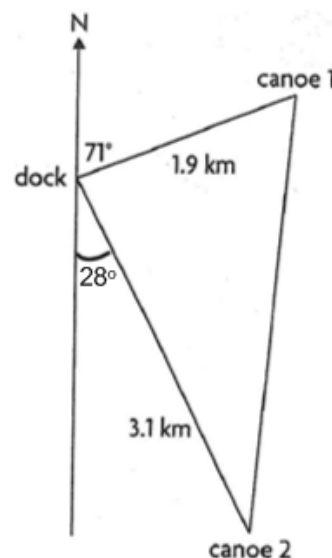


Worksheet – Trigonometry Review

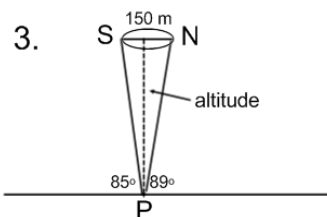
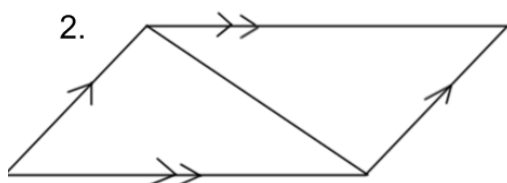
1. A canoe leaves a dock on Lake Claire and heads in a direction $N71^\circ E$ for 1.9 km. At the same time, a second canoe travels in a direction $S28^\circ E$ from the dock for 3.1 km.

The distance between the canoes is _____ km, to the nearest tenth of a kilometre.



2. In a parallelogram, two adjacent sides measure 4.2 cm and 5.9 cm. The shorter diagonal is 2.6 cm.

The larger angles in the parallelogram measure _____ $^\circ$, to the nearest degree.



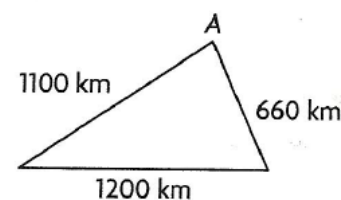
3. An atmospheric scientist is trying to determine the altitude (height above Earth's surface) of a circular cloud directly above him. The scientist measures the angle of elevation to the north end of the cloud to be 89° and the angle of elevation to the south end of the cloud to be 85° . The scientist knows that this cloud has a diameter of about 150 m.

The altitude of the cloud, to the nearest metre, is _____ m.

4. A bush pilot delivers supplies to an isolated village by flying 470 km in the direction $N66^\circ E$. While at the village, the pilot decides that she must refuel at a camp located 35 km $S11^\circ E$ of the village.

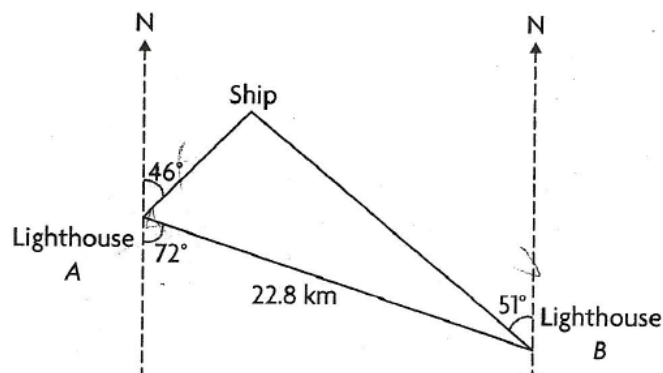
By the time she returns to her starting point, the pilot will have flown a total distance of _____ km, to the nearest kilometre.

5. Two airplanes leave Hay River airport at the same time. One flies at 550 km/h. The other flies at 330 km/h. About 2 h later, they are 1200 km apart. Determine the angle between their paths, to the nearest degree.



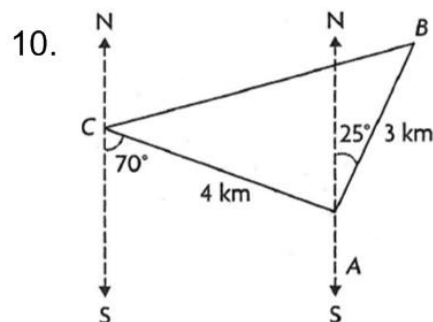
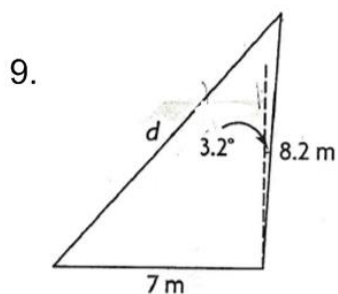
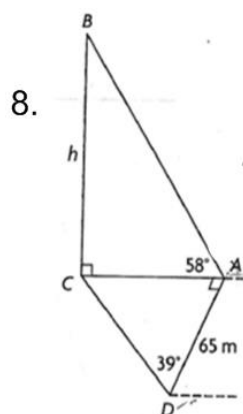
6. An airplane is spotted by two observers on opposite sides of it. On the ground, the observers are 1500 m apart. One observer's line of sight to the airplane makes an 83° angle with the ground. The other's line of sight makes a 69° angle with the ground. Determine the distance from each observer to the airplane, to the nearest metre.

7. Two lighthouses, A and B , are 22.8 km apart. From lighthouse A , the compass heading for lighthouse B is $S72^\circ E$. The keeper in each lighthouse sees the same ship. The heading of the ship from lighthouse A is $N46^\circ E$. The heading of the ship from lighthouse B is $N51^\circ W$. How far, to the nearest tenth of a kilometre, is the ship from each lighthouse?



8. Calculate the height, h , to the nearest tenth of a metre.

9. An 8.2 m tall telephone pole stands on level ground and leans 3.2° from the vertical. When the pole's shadow is 7 m long, what is the distance, d , from the top of the pole to the tip of the shadow, to the nearest tenth of a metre?



10. Jasleen leaves her campsite at C and hikes 4 km in a $S70^\circ E$ direction to A . She then turns and hikes 3 km in a $N25^\circ E$ direction to B . How far is Jasleen from the campsite? Round your answer to the nearest tenth of a kilometre.

11. From the top of a 25 m building, the angle of depression to one parked car is 63° and the angle of depression to another parked car is 52° . The cars are parked in the same line of sight.

The distance between the two cars, to the nearest tenth of a metre, is _____ m.

12. Which set of measurements could result in two possible triangles?

- A. $\angle A = 25^\circ$, $a = 2.5$ m, $b = 6.2$ m C. $\angle A = 96^\circ$, $a = 5.2$ m, $b = 5.0$ m
 B. $\angle A = 135^\circ$, $a = 3.8$ m, $b = 4.0$ m D. $\angle A = 48^\circ$, $a = 7.4$ m, $b = 7.1$ m

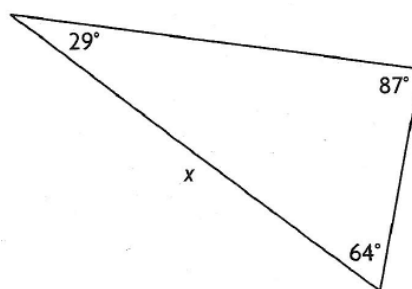
13. In $\triangle RST$, $\angle R = 29^\circ$, $s = 5.4$ m, and $t = 5.8$ m.

Which statement is true for this set of measurements?

- A. This is an SSA situation; no triangle is possible.
 B. This is an SSA situation; only one triangle is possible.
 C. This is an SSA situation; two triangles are possible.
 D. This is not an SSA situation; only one triangle is possible.

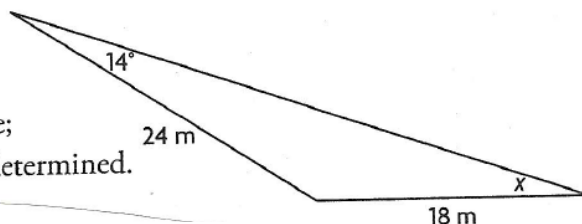
14. Which would you use to determine the length of x ?

- A. the primary trigonometric ratios
 B. the sine law
 C. the cosine law
 D. None of the above; x cannot be determined.



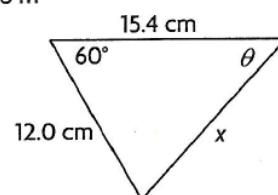
15. Determine the measure of x , to the nearest degree.

- A. 10° C. 11°
 B. 19° D. None of these;
 x cannot be determined.



16. Determine the length of x to the nearest tenth of a centimetre and the measure of θ to the nearest degree.

17. In $\triangle ABC$, $\angle A = 47^\circ$, $a = 3.5$ cm, and $b = 5.0$ cm. Determine the number of triangles (zero, one, or two) that are possible. Draw a diagram to support your answer.



18. In $\triangle PQR$, $\angle P = 41^\circ$, $p = 35$ mm, and $r = 47$ mm.

- a) Predict, with reasons, how many triangles are possible for this situation.
 b) Determine the area of each possible triangle, to the nearest square millimetre.

ANSWERS:

1. 3.4 km 2. 157° 3. 1429 m 4. 968 km 5. 82° 6. $d_1 = 3171$ m, $d_2 = 2983$ m
7. distance to A = 8.2 km, distance to B = 20.3 km 8. 84.2 m 9. 11.1 m 10. 5.2 km
11. 6.8 m 12. None 13. D 14. D 15. B 16. $x = 14.0$ cm, $\theta = 48^\circ$
17. No triangle is possible (since $a < h$) 18. Two triangles are possible (since $\angle R$ is acute & $h < p < r$)
19. Case 1 ($\angle R$ is acute): $A = 802 \text{ mm}^2$, Case 2 ($\angle R$ is obtuse): $A = 292 \text{ mm}^2$