

Pre-Calculus 11 - VLN

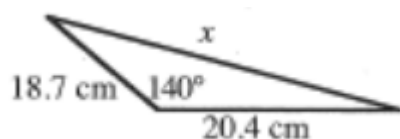
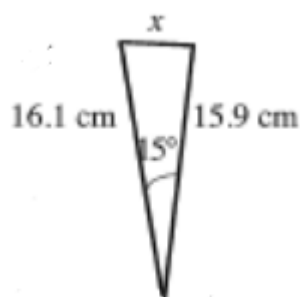
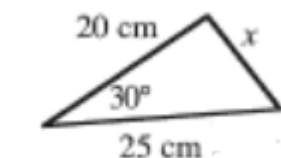
Chapter 6: Trigonometry

Lesson 4: Cosine Law

Question #1

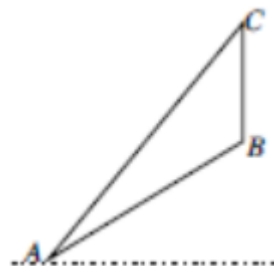
Reference Q.13326

In each case, find the length of the indicated side to the nearest 0.1 cm.



Question #4

Reference Q.13328



In the diagram, AB represents part of a road constructed on the incline of a hill. BC represents a telephone pole 7.5m tall at the side of the road. A guide wire attached to the top of the pole is joined to the ground at A . If $AB = 11.4m$ and $\angle ABC = 135^\circ$, determine the length of the guide wire to the nearest 0.1m.

Question #2

Reference Q.13327

In $\triangle ABC$, $\angle A = 49^\circ$, $b = 24$, and $c = 37$. Calculate a to the nearest whole number.

Question #3

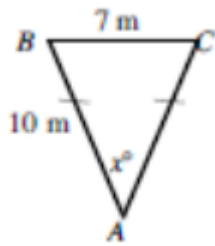
Reference Q.13329

Solve triangle ABC in which $AB = 4.5cm$, $BC = 7.8cm$ and $\angle ABC = 79^\circ$. Round sides to the nearest tenth of a cm and angles to the nearest tenth of a degree.

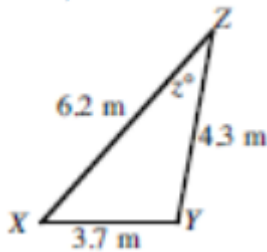
Question #5

Reference Q.13331

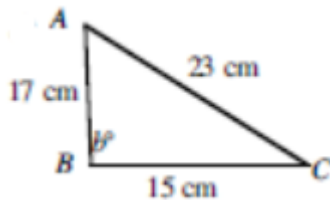
In each case, find the measure of the indicated angle to the nearest degree.



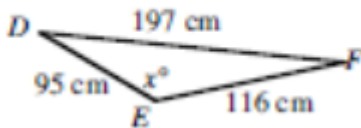
a.



b.



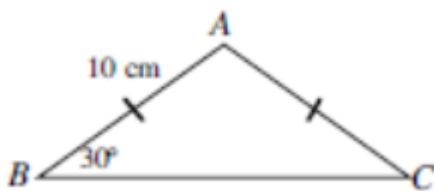
c.



d.

Question #6

Reference Q.13335



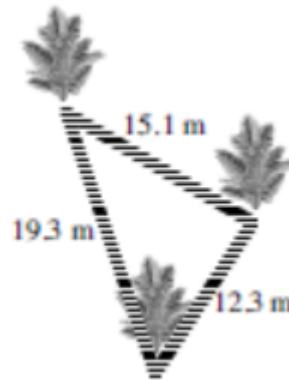
The length of BC in cm is

- A. $5\sqrt{3}$
- B. 10
- C. $10\sqrt{3}$
- D. 20

Question #7

Reference Q.13332

Anwar and Ingrid have three trees in their garden. The trees form a triangle as shown in the diagram. Determine the smallest angle between the trees.



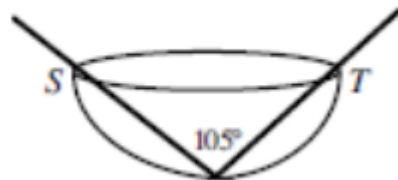
Question #8

Reference Q.13349

At 12 noon a ship observes a lighthouse at a distance of 15 km in a direction of $N50^\circ E$. It sails at 15 km/h in a direction $S35^\circ W$. Find the distance and direction of the lighthouse from the ship at 3 pm. Answer to the nearest whole number.

Question #9

Reference Q.13336



The diagram shows a glass bowl with two chop-sticks resting on the rim at points S and T . The length of the parts of the chop-sticks inside the bowl are 9 cm and 11.5 cm respectively. The length of $\overline{ST}$, to the nearest tenth of a cm, is ____.

Question #10

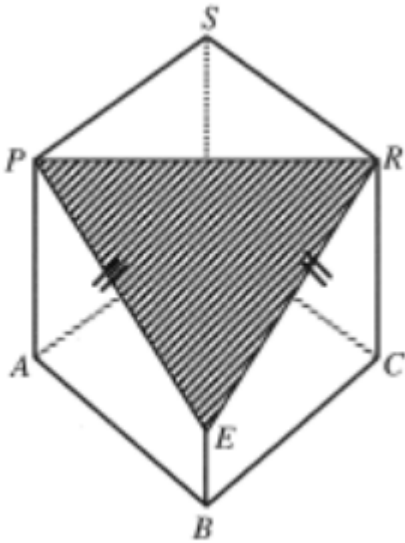
Reference Q.13346

Two spruce trees are 100m apart. From the point on the ground halfway between the trees the angles of elevation to the tops of the trees are 21° and 39° . Determine the distance, to the nearest metre, between the tops of the two trees.

Question #11

Reference Q. 13333

The solid in the diagram was formed by removing a corner from a cube of side 24 cm. The length of EB is 6 cm.

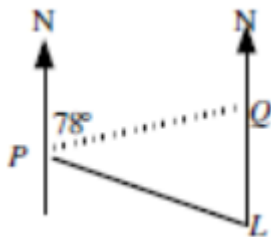


- Calculate, to the nearest tenth, the lengths of PE and PR .
- Calculate the measure of $\angle PER$ to the nearest degree.

Question #12

Reference Q. 13348

A ship is steaming at 16km/h on a course of 78° , illustrated by the dotted line in the diagram. L represents the position of a lighthouse. At 0800 hours the ship is at P , which is on a bearing of 314° from L , and one hour later it is at Q , which is due north of L .



- Determine the measures of $\angle PLQ$ and $\angle LPQ$.
- Calculate the distance PL , to the nearest kilometre.
- At what time, to the nearest minute, is the ship nearest to the lighthouse?

Question #13

Reference Q. 13350

Yachts in a race have to sail a triangular course. First they sail in a direction of $S45^\circ E$ for 8 km. They change direction and sail on a course of $N45^\circ E$. The last part of the course is to return to the start by sailing due West. How far was the second part of the course? The most appropriate method for solving this problem is

- SOHCAHTOA
- the Sine Law
- the Cosine Law
- the problem cannot be solved without further information

Question #14

Reference Q. 13351

In $\triangle ABC$, $BA = 9\text{cm}$, $AC = 13\text{cm}$ and $\angle ABC = 113^\circ$. Calculate the measure of $\angle BCA$. The most appropriate method for solving this problem is

- SOHCAHTOA
- the Sine Law
- the Cosine Law
- the problem cannot be solved without further information.

Question #15

Reference Q. 13352

A pilot leaves base flying on a bearing of 340° . After 30 minutes he changes course to 108° and flies in this direction until he is due north of base. How far does he have to fly South to return to base? The most appropriate method for solving this problem is

- SOHCAHTOA
- the Sine Law
- The Cosine Law
- the problem cannot be solved without further information.

Question #16

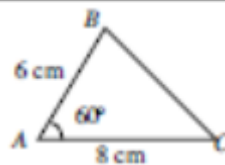
Reference Q. 13353

Two aircraft X and Y leave an airport at the same time. X flies on a course of 70° at 720 km/h, and Y flies on a course of 350° at 600km/h. To the nearest kilometre, the distance between the aircraft after 5 minutes is ____.

Question #17

Reference Q. 13354

In $\triangle ABC$, $\angle BAC = 60^\circ$, $AB = 6\text{cm}$, and $AC = 8\text{cm}$.

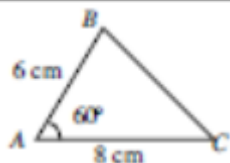


The length of BC , to the nearest tenth of a cm, is ____.

Question #18

Reference Q.13355

In $\triangle ABC$, $\angle BAC = 60^\circ$, $AB = 6\text{ cm}$, and $AC = 8\text{ cm}$.



The ratio $\frac{\sin C}{\sin B}$, to the nearest hundredth, is ____.

Question #19

Reference Q.13356

The minute hand of a clock is 12 cm long and the hour hand is 10 cm long. To the nearest degree, the angle between these hands at 5 o'clock is ____.

Question #20

Reference Q.13357

The minute hand of a clock is 12 cm long and the hour hand is 10 cm long. To the nearest degree, the angle between these hands at 7:30 pm is ____.

Question #21

Reference Q.13358

The minute hand of a clock is 12 cm long and the hour hand is 10 cm long. To the nearest 0.1 cm, the distance between the tips of the hands at 9:30 pm is ____.