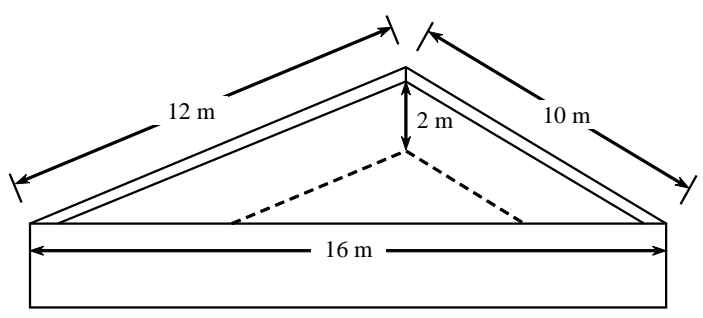**1** A swimming pool is in the shape of a right prism with a triangular base. The edges of the base measure 12 m, 10 m and 16 m respectively.
The water in the pool is 2 m deep.

Treating the water with chlorine costs $0.10 per cubic metre of water.

How much does it cost to treat the water in this pool with chlorine?

(Answer: $11.98)

12 m   2 m   10 m

16 m

2 Altitude BD was drawn in triangle ABC shown below. The perimeter of triangle ABC is 42 m.

In addition:

m $\overline{AB}$ = 13 m

m $\overline{AC}$ = 14 m

What is the measure of altitude BD?
(Answer: 12m)

B

13 m

A   D   C

14 m
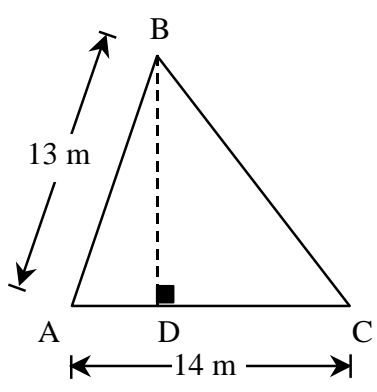
3 Triangle ABC shown on the right represents a plot of land in which:

m $\overline{AC}$ = 64.3 m

m $\overline{AB}$ = 50 m

m ∠B = 100°

m ∠BAC = 30°

What is the area of the plot of land? (Answer:804 m ^{2})

B

50 m   100°

A   30°

64.3 m   C
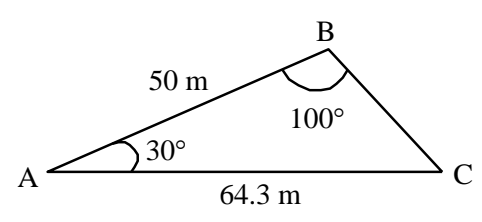
4 Two triangular lots share a common side, AC.

What is the area of the lot represented by triangle ACD?

(Answer: 89 m²)

D

15 m

18 m

A

13 m

C

5 m

B
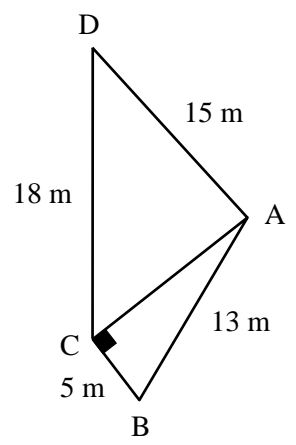
5 In triangle ABC shown on the right:

m $\overline{AB}$ = 60 m

m $\overline{BC}$ = 40 m

m $\overline{CA}$ = 50 m

What is the area of triangle ABC to the nearest m²? (Answer: 992 m²)
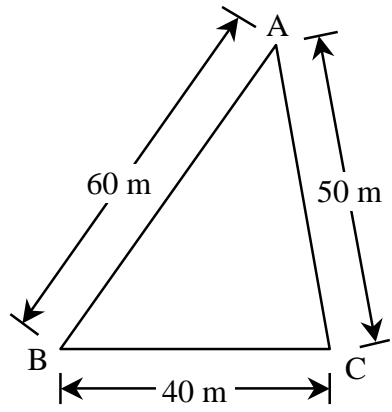
6 In January 1998, the South Shore of Montreal was hit by an ice storm. The hardest hit region fell within a triangle formed by the cities of St-Hyacinthe, Granby and St-Jean-Sur-Richelieu.

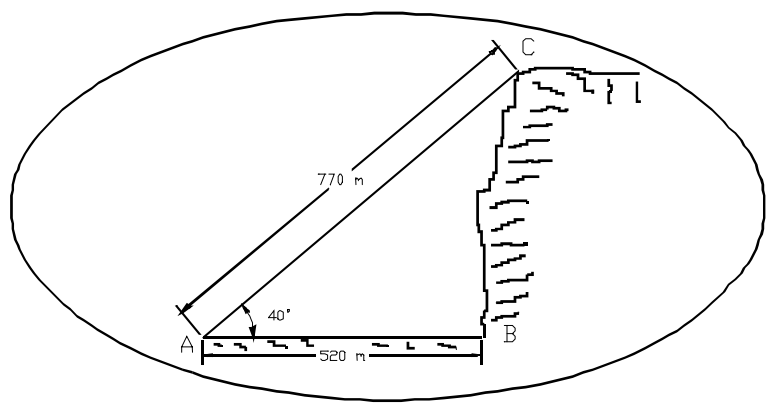The diagram below indicates the distance between the cities.
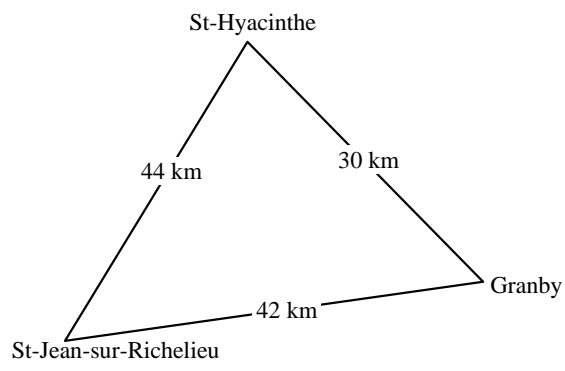
What is the area of the triangular region? (Answer: 603.1 km²)

7 The diagram below represents a chair lift which takes tourists up to the top of a cliff.

Find the distance BC between the bottom and the top of the cliff.

(Answer: 500 m)

8

Two ships leave the Halifax harbour at the same time. The first one (B) travels at a speed of 16 km/h and the second one (C) at a speed of 12 km/h.

Maintaining their initial direction, the ships are 25 km apart after two hours. **What was the measure of the angle between these two ships on their departure from Halifax harbour?** (Answer: 51°)

C

25 km

?

B

Halifax harbour
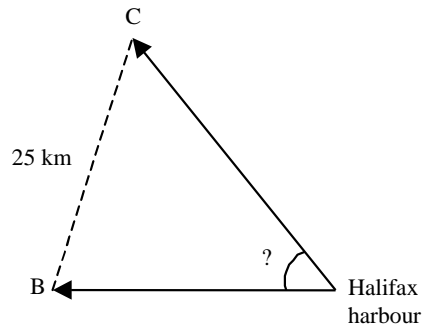
9

In a science experiment, a class wanted to calculate the distance a marble travelled from point A to point B on a slope with the measurements shown below:

To help her students, the teacher gave out additional information:

- m ∠ AMO = 60°

- m ∠ AOB = 64°

- ∠ MOA ≅ ∠ BON

M

A

100 cm

B

O

173.2 cm

N
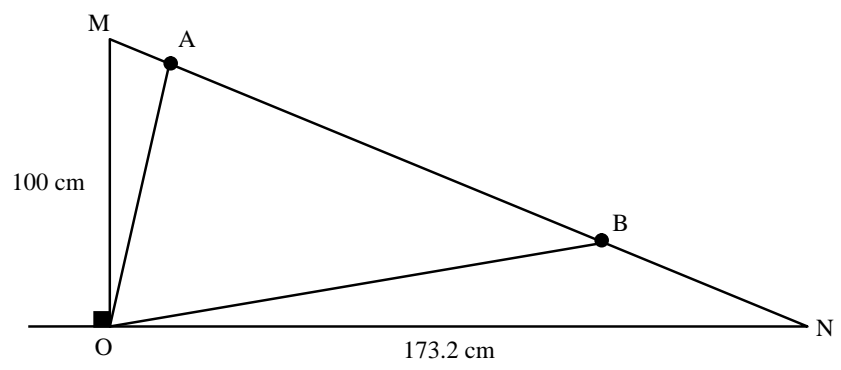
How many centimetres did the marble travel from point A to point B? (Answer: 119.3 cm)

10

Telephone pole BD is supported by 2 cables anchored on opposite sides of the pole. Cable 1 measures 30 m. Cable 2 measure 35 m and forms an angle of 30° with the ground.
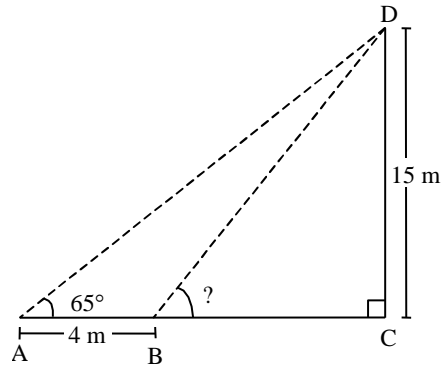
What is the measure of the angle formed by the 2 cables, ∠ ABC? (Answer: 114°)

B

Cable 1

30 m

Cable 2

35 m

A

D

30°

C
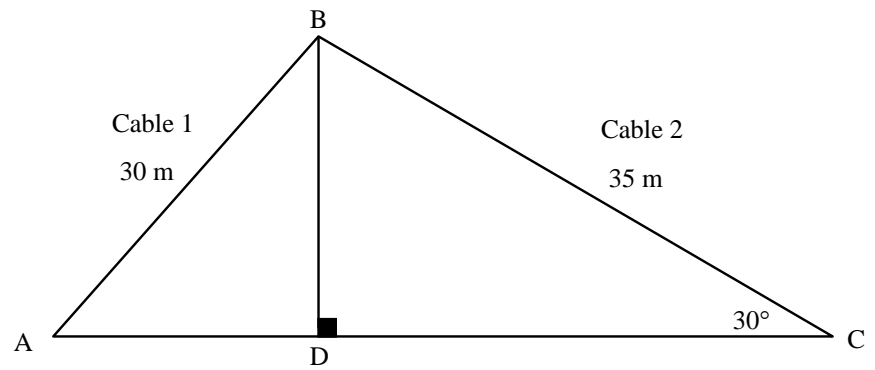
11 Two bird watchers, 4 metres apart, are located at positions A and B as shown on the figure.

Both are looking at the top of a 15-metre tree. From point A, the angle of elevation is 65°.

What is the angle of elevation of the bird watcher at position B? (Answer: 79°)

D
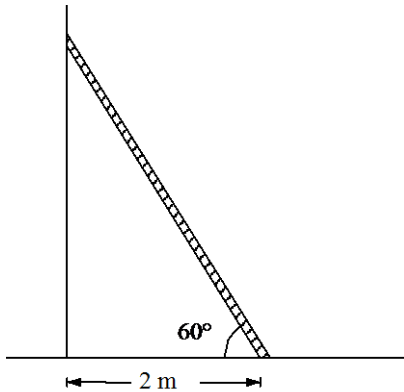
15 m

65°   ?

A ⊢— 4 m —⊣ B   C

12 A flagpole is supported by a guy wire 4 m long. This guy wire is anchored to the ground 1.75 m from the foot of the flagpole.

What is the measure of the angle between the guy wire and the ground? (Answer: 64°)

4 m

⊢— 1.75 m —⊣
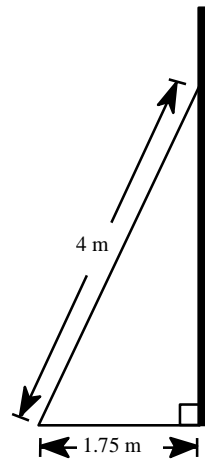
13 A ladder resting against a wall makes an angle of 60° with the ground. The foot of the ladder is 2 m from the wall.

The ladder is still resting against the wall, but it has been moved in such a way that it now makes an angle of 75° with the ground.

What height _h_ does the top of the ladder now reach on the wall? (Answer: 3.86 m)

60°

⊢— 2 m —⊣

h

75°