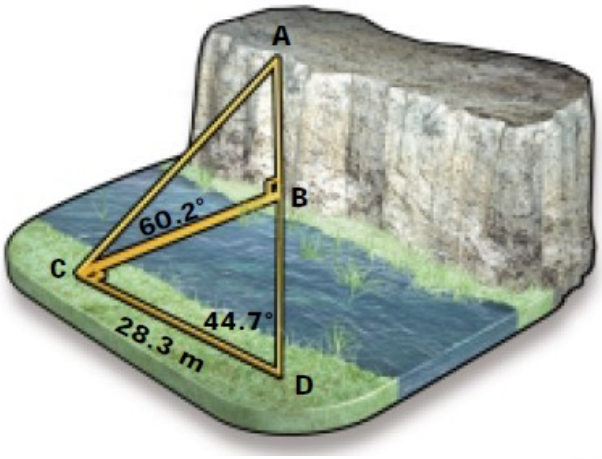
11. Mica Dam The highest dam in Canada is the Mica Dam, one of three dams on the Columbia River in British Columbia. From a point 600 m from the foot of the dam, the angle of elevation of the top of the dam is 22°. What is the height of the dam, to the nearest metre?

12. Arctic Circle Find the length of the Arctic Circle, which is 66.55° north, to the nearest 10 km. Assume that the radius of the Earth is 6380 km.

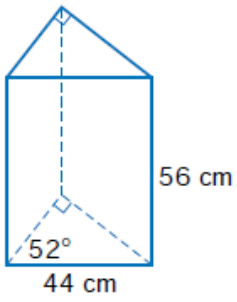
B

13. Surveying A surveyor measured the height of a vertical rock face by determining the measurements shown. If the surveyor's theodolite had a height of 1.7 m, find the height of the rock face, AB, to the nearest tenth of a metre.



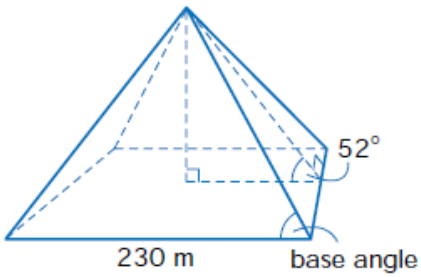
16. Application From 1857 to 1860, Great Britain financed the construction of ten lighthouses in British North America. They were built because obsolete navigational aids were hindering economic growth. The lighthouses are called the *Imperial Lights*. Four of them were built along the approaches to the Saint Lawrence, and six were built on the eastern shore of Lake Huron. The Point Clark lighthouse, on Lake Huron, is 28.3 m tall. From the top of the lighthouse, the angle of depression of a ship is 3.3°. How far is the ship from the lighthouse, to the nearest metre?

18. Measurement Find the volume of the triangular prism, to the nearest cubic centimetre.



C

19. Great Pyramid The Great Pyramid of Khufu has a square base with a side length of about 230 m. The four triangular faces of the pyramid are congruent and isosceles. The altitude of each triangular face makes an angle of 52° with the base. Find the measure of each base angle of the triangular faces, to the nearest degree.



9. 3.7 cm **10.** 41 m **11.** 242 m **12.** 15 950 km **13.** 50.6 m **14.** 49.7 m^2 **15. a)** 37 670 km **16.** 491 m **17.** The radius, r, of any parallel of latitude is equal to the radius of the equator, r_e, times the cosine of the latitude angle, θ: $r = r_e \cos\theta$. The length of the parallel of latitude is $2\pi r$. So $2\pi r = 2\pi r_e \times \cos\theta$, and $2\pi r$ is the length of the equator. **18.** 26 299 cm^3 **19.** 58° **20. a)** If the base of $\triangle ABC$ is a,