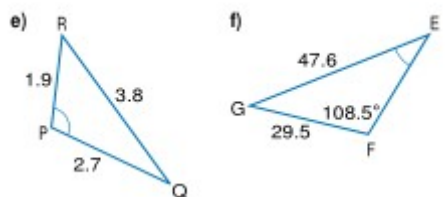
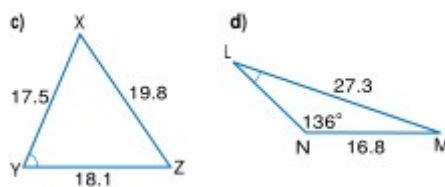
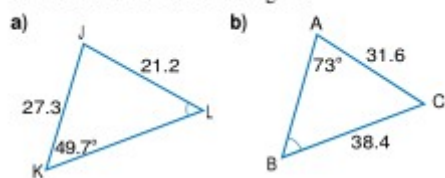


2. Find the measure of the indicated angle, to the nearest tenth of a degree.



3. Solve each triangle. Round answers to the nearest tenth, if necessary.

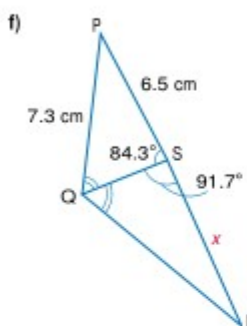
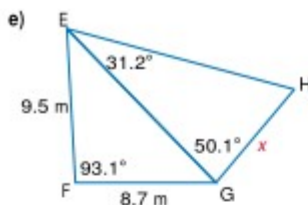
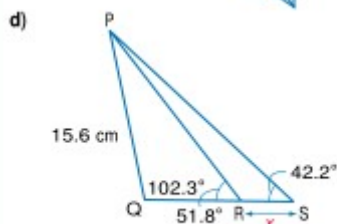
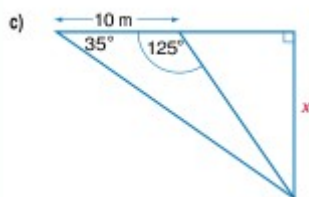
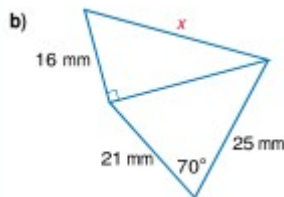
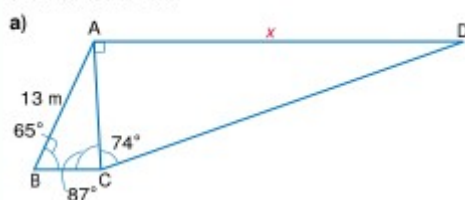
- a) In $\triangle ABC$, $\angle A = 84^\circ$, $\angle C = 40^\circ$, $a = 5.6$ m.
 b) In $\triangle PQR$, $\angle R = 28.5^\circ$, $p = 10.4$ cm, $r = 6.3$ cm.
 c) In $\triangle LMN$, $\angle M = 62^\circ$, $l = 16.9$ m, $n = 15.1$ m.

d) In $\triangle UVW$, $\angle W = 123.9^\circ$, $\angle V = 22.2^\circ$, $v = 27.5$ km.

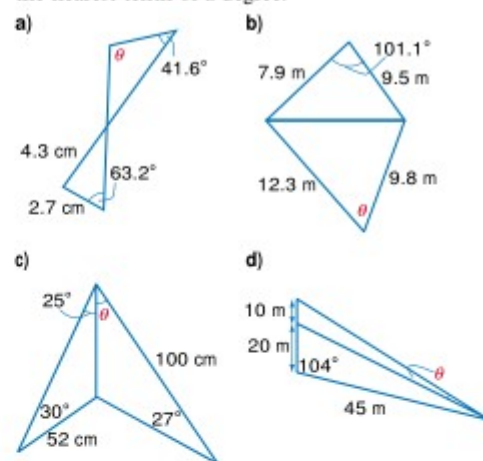
e) In $\triangle XYZ$, $\angle X = 92.3^\circ$, $y = 3.1$ cm, $z = 2.8$ cm.

f) In $\triangle FGH$, $f = 12.6$ m, $g = 8.5$ m, $h = 6.3$ m.

4. Find the length of the indicated side, to the nearest tenth.

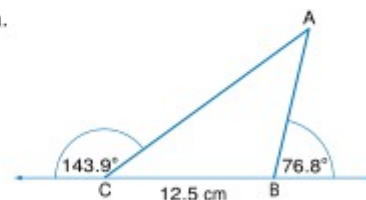


5. Find the measure of the indicated angle, to the nearest tenth of a degree.



Apply, Solve, Communicate

6. Solve $\triangle ABC$. Round answers to the nearest tenth.



7. **Measurement** An isosceles triangle has two 5.5-cm sides and two 32.4° angles. Find

- a) the perimeter of the triangle, to the nearest tenth of a centimetre
 b) the area of the triangle, to the nearest tenth of a square centimetre

B

8. **Inquiry/Problem Solving** Airport X is 150 km east of airport Y. An aircraft is 240 km from airport Y, and 23° north of due west from airport Y. How far is the aircraft from airport X, to the nearest kilometre?

- 9. Application** To determine the height of the Peace Tower on Parliament Hill in Ottawa, measurements were taken from a baseline AB. It was found that $AB = 50$ m, $\angle XAY = 42.6^\circ$, $\angle XAB = 60^\circ$, and $\angle ABX = 81.65^\circ$. Calculate the height of the Peace Tower, to the nearest metre.

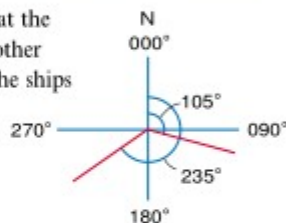
Web Connection

www.school.mcgrawhill.ca/resources/

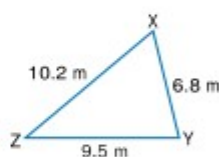
To learn more about the history and construction of the Parliament Buildings, visit the above web site. Go to **Math Resources**, then to *MATHEMATICS 11*, to find out where to go next. Write a brief report.



- 10. Ship navigation** Two ships left Port Hope on Lake Ontario at the same time. One travelled at 12 km/h on a course of 235° . The other travelled at 15 km/h on a course of 105° . How far apart were the ships after four hours, to the nearest kilometre?



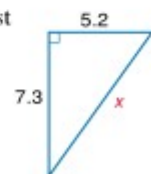
- 11. Measurement** Find the area of $\triangle XYZ$, to the nearest tenth of a square metre.



- 12. Communication** a) Use the cosine law to find x , to the nearest tenth.

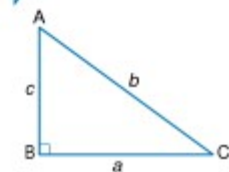
b) Use the Pythagorean theorem to find x , to the nearest tenth.

c) Explain why the two methods give the same results in a right triangle.



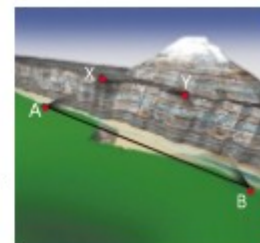
- 13. Sine law in right triangles** Right $\triangle ABC$ is shown. Write each of the ratios $\frac{a}{\sin A}$, $\frac{b}{\sin B}$, and $\frac{c}{\sin C}$ in terms of a , b , or c , and

verify that $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ for a right triangle.



C

- 14. Stikine Canyon** The Stikine Canyon in central British Columbia is often referred to as Canada's Grand Canyon. Two points X and Y are sighted from a baseline AB of length 30 m on the opposite side of the canyon. The angle measurements recorded from positions A and B were $\angle XAY = 31.3^\circ$, $\angle XBY = 18.5^\circ$, $\angle ABX = 25.6^\circ$, and $\angle BAY = 27.9^\circ$. Find the distance from X to Y, to the nearest metre.

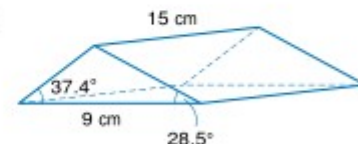


- 15. Geometry** Use the cosine law to show that opposite angles in a parallelogram are congruent.

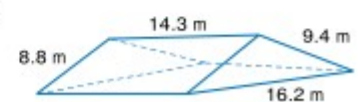
- 16. Measurement** In $\triangle RST$, $RS = 4.9$ m, $ST = 3.7$ m, and $RT = 8.1$ m. Find the area of $\triangle RST$, to the nearest tenth of a square metre.

- 17. Measurement** In $\triangle ABC$, $BC = 46$ m, $\angle A = 42.2^\circ$, and $\angle B = 39.5^\circ$. Find the area of $\triangle ABC$, to the nearest tenth of a square metre.

- 18. Measurement** Find the volume of the right prism, to the nearest cubic centimetre.



- 19. Measurement** Find the volume of the right prism, to the nearest cubic metre.



- 20. Analytic geometry** $\triangle PQR$ has vertices $P(1, 5)$, $Q(6, -7)$, and $R(-2, 1)$. Find the angle measures, to the nearest tenth of a degree.

1. a) 13.3 b) 38.6 c) 2.4 d) 11.6 e) 73.1 f) 16.5 2. a) 79.1 b) 51.9 c) 67.6 d) 25.3 e) 110.2 f) 36.0 3. a) $\angle B = 56^\circ$, $b = 4.7$ m, $c = 3.6$ m b) $\angle P = 52.0^\circ$, $\angle Q = 99.5^\circ$, $p = 13.0$ cm c) $\angle L = 64.3^\circ$, $\angle N = 53.7^\circ$, $m = 16.6$ cm d) $\angle U = 33.9^\circ$, $u = 40.6$ km, $w = 60.4$ km e) $\angle Y = 46.6^\circ$, $\angle Z = 41.1^\circ$, $x = 4.3$ cm f) $\angle F = 115.9^\circ$, $\angle G = 37.4^\circ$, $\angle H = 26.7^\circ$ 4. a) 12.4 m b) 31.0 mm c) 13.7 m d) 4.8 cm e) 6.9 m f) 8.2 cm 5. a) 104.3° b) 74.2° c) 20.6° d) 7.8° 6. $\angle A = 40.7^\circ$, $\angle B = 103.2^\circ$, $\angle C = 36.1^\circ$, $b = 18.7$ cm, $c = 11.3$ cm 7. a) 20.3 cm b) 13.7 cm 8. 383 km 9. 73 m 10. 98 km 11. 31.3 m 12. a) 9.0 b) 9.0 c) The cosine law gives $x^2 = 5.2^2 + 7.3^2 - 2(5.2)(7.3) \cos 90^\circ$, but since $\cos 90^\circ = 0$, this becomes $x^2 = 5.2^2 + 7.3^2$, which is equivalent to the Pythagorean theorem. 13. Each ratio is equal to b . 14. 13 m 15. 5.8 m 16. 991.4 m 17. 991.4 m 18. 193 cm 19. 480 m 20. $\angle P = 59.5^\circ$, $\angle Q = 22.4^\circ$, $\angle R = 98.1^\circ$