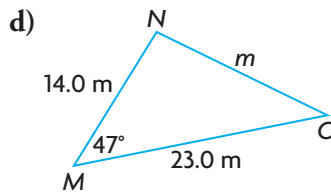
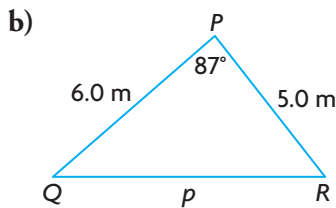
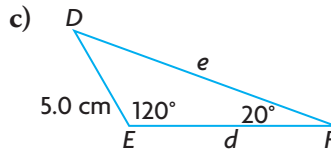
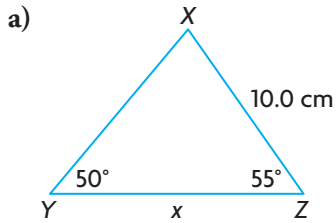
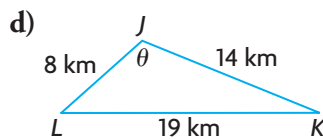
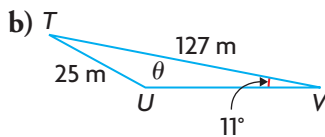
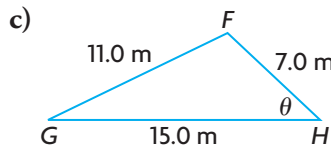
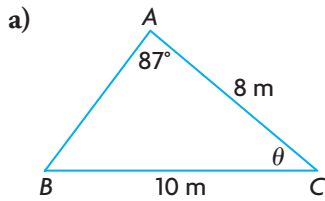


1. Determine the measure of all indicated sides to the nearest tenth of a unit.



2. Determine the measure of each indicated angle to the nearest degree.



3. In  $\triangle HIJ$ ,  $\angle I = 48^\circ$ ,  $i = 9$  cm, and  $j = 11$  cm. Solve  $\triangle HIJ$ . Round your answers to the nearest tenth of a unit.
4. In  $\triangle DEF$ ,  $\angle D$  is  $58^\circ$ ,  $e$  is 10.0 cm, and  $f$  is 14.0 cm. Solve  $\triangle DEF$ . Round your answers to the nearest tenth of a unit.

5. Mohammed has been driving his ATV on the Vedder Mountain Trail System, near Chilliwack, British Columbia, for 3.2 km. He has been travelling in a compass direction of  $N54^\circ E$ . He uses his compass to change direction to a new course of  $S5^\circ W$  and continues for 4.6 km. If Mohammed wants to return directly to his starting point, how far must he travel, to the nearest tenth of a kilometre? In which direction should he travel, to the nearest tenth of a degree?
6. On a 520 m hole, a golfer's tee shot travels 175 m,  $17^\circ$  to the right of the direct path to the flag. The golfer's second shot flies  $15^\circ$  farther to the right, but only travels 150 m. How far, to the nearest metre, is the golfball from the flag?
7. In  $\triangle QRS$ ,  $\angle Q$  is acute. Explain, with the help of a diagram, the relationship between  $\angle Q$ , sides  $q$  and  $r$ , and the height of the triangle, for each of the following situations to occur.
  - a) No triangle is possible.
  - b) Only one type of triangle is possible.
  - c) Two types of triangles are possible.
8. Caitlin wants to determine the height of a tree on the opposite bank of a river. She starts by laying out a baseline that is 100 m long. Then she estimates the angles from the ends of the baseline to the base of the tree as  $80^\circ$  and  $30^\circ$ . From the end of the baseline with the  $80^\circ$  angle, she estimates the angle of elevation to the top of the tree as  $20^\circ$ .
  - a) Sketch a diagram to model this situation.
  - b) Determine the height of the tree, to the nearest tenth of a metre.
9. In a study of the longevity of a particular breed of dog, veterinarians recorded the lifespans of 30 dogs.

Lifespans of Dogs (years)				
12.9	13.2	14.1	13.9	12.8
13.1	13.2	13.6	13.0	13.4
12.9	13.3	11.8	12.8	14.6
10.4	14.8	11.5	13.5	13.6
9.6	14.5	13.5	13.8	14.4
13.1	13.6	12.8	12.9	13.3

- a) Create a frequency table and histogram for the data.  
 b) Does the data approximate a normal distribution? Explain.  
 c) Determine the range and standard deviation of the data.  
 Describe what these measures tell you about the data.
10. The average daily temperature in Winnipeg, Manitoba, during the month of January is  $-17.8^{\circ}\text{C}$ , with a standard deviation of  $3.9^{\circ}\text{C}$ . The average daily temperature in Whitehorse, Yukon, during the month of January is  $-17.7^{\circ}\text{C}$ , with a standard deviation of  $7.3^{\circ}\text{C}$ . Compare the temperatures at these two locations in January.
11. Zac is 195 cm tall. In a recent survey of students at his school, it was determined that the heights of the students are normally distributed, with a mean of 170 cm and a standard deviation of 12.5 cm.
- a) What percent of the students at Zac's school are shorter than Zac?  
 b) What percent of the students are taller than Zac?
12. A manufacturer of smart phones has created a new phone model. The mean life of this new model is 48 months, with a standard deviation of 12 months. The manufacturer has offered a 24-month warranty on this model.
- a) Determine the percent of phones that are expected to malfunction during the warranty period.  
 b) What percent of phones is expected to malfunction during the second and third year of use?
13. From May 29 to June 3, 2010, Nanos Research conducted a random telephone survey of 1008 Canadians, 18 years of age and older, to ask the following question: What are the most important issues facing Canadians today? The responses are shown in the table.
- a) What is the margin of error for this survey?  
 b) Determine the confidence level for this survey.  
 c) State the confidence interval for each of the following responses.  
 i) health care  
 ii) environment
14. Explain why the confidence level for a poll or survey is decreased when
- a) the margin of error decreases for a specific sample size  
 b) the sample size that is needed for a specific margin of error decreases

Responses	(%)*
health care	23.1
jobs/economy	19.2
environment	12.6
high taxes	5.3
education	2.5
unsure	13.3

\*Percent values may not add to 100 due to rounding.

This survey is accurate, plus or minus 3.1 percent points, 19 times out of 20.