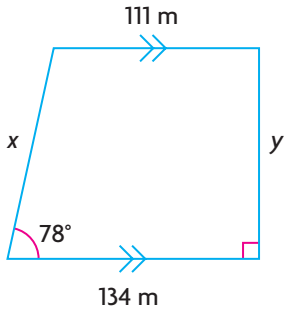
5 Chapter Self-Test



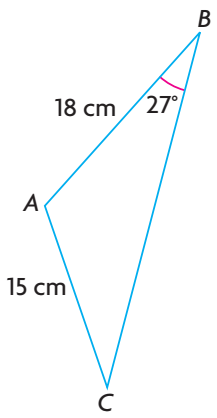
1. A 3 m ladder can be used safely only at an angle of 75° with the horizontal. How high, to the nearest metre, can the ladder reach?

2. A road with an angle of elevation greater than 4.5° is steep for large vehicles. If a road rises 61 m over a horizontal distance of 540 m, is the road steep? Explain.

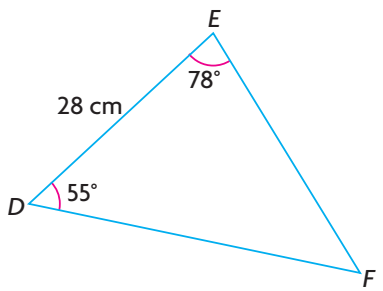
3. A surveyor has mapped out a property as shown at the left. Determine the length of sides x and y to the nearest metre.

4. Solve each triangle. Round each length to the nearest centimetre and each angle to the nearest degree.

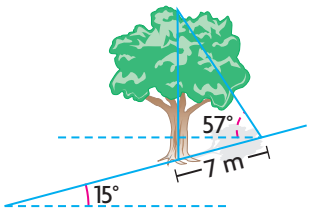
a)



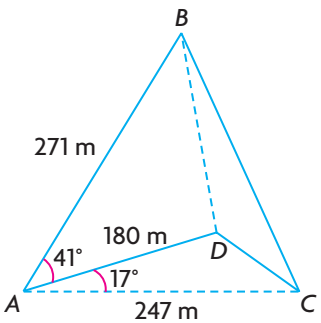
b)



5. A 5.0 m tree is leaning 5° from the vertical. To prevent it from leaning any farther, a stake needs to be fastened 2 m from the top of the tree at an angle of 60° with the ground. How far from the base of the tree, to the nearest metre, must the stake be?



6. A tree is growing vertically on a hillside that is inclined at an angle of 15° to the horizontal. The tree casts a shadow uphill that extends 7 m from the base of its trunk when the angle of elevation of the Sun is 57°. How tall is the tree to the nearest metre?



7. Charmaine has planned a nature walk in the forest to visit four stations: A, B, C, and D. Use the sketch shown at the left to calculate the total length, to the nearest metre, of the nature trail, from A to B, B to C, C to D, and D back to A.

8. A weather balloon at a height of 117 m has an angle of elevation of 41° from one station and 62° from another. If the balloon is directly above the line joining the stations, how far apart, to the nearest metre, are the two stations?