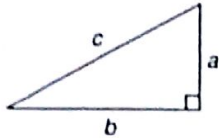


## Similar Right Triangles: Pythagorean Triples

### Key Concept

- Three natural numbers that satisfy the Pythagorean Relation  $a^2 + b^2 = c^2$  are called a **Pythagorean Triple**.
- A Pythagorean Triple is a **primary Pythagorean Triple** if the greatest common factor of the three numbers is 1. Other triples in the same family can be found by multiplying each number in the primary Pythagorean triple by the same constant.

1. Using the diagram, describe a Pythagorean Triple.



Determine whether or not each set of numbers is a Pythagorean Triple.

2. {3, 4, 6}

3. {5, 12, 13}

4. {40, 42, 58}

5. {7, 15, 18}

Each set of numbers is a Pythagorean Triple.

Find one other Pythagorean Triple in its family.

6. {9, 12, 15}

7. {28, 45, 53}

8. {15, 20, 25}

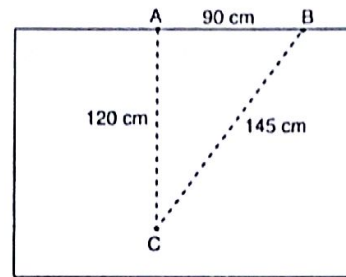
9. {24, 45, 51}

Find the missing value in each Pythagorean Triple.

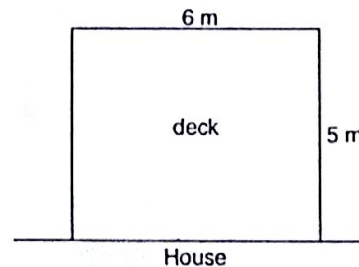
10. {8, 15, ?}

11. {15, ?, 39}

12. While laying carpet, the installer tries to make a right-angled cut. A mark (A) is made along the edge of the carpet. A second mark (B) is made 90 cm from the first, along one side. A third mark (C) is made 120 cm in from the edge. The second and third marks are 145 cm apart. Will a cut along the line through A and C be "square" to the edge of the carpet?



13. A deck is to be built along the wall of a house and is to measure 6 m by 5 m.



- Select an appropriate Pythagorean Triple to use in order to make sure the deck is "square" to the wall of the house.
- Describe how the deck builder should use the Pythagorean Triple.