Worksheet on Pythagorean Theorem and Pythagorean Triples

Group 1

1. The hypotenuse of a right triangle is 6 and one leg of the triangle is 3. Find the other leg.

2. Find the hypotenuse of a right triangle whose legs are both equal to 5.

3. The hypotenuse of a right triangle is 20 and one leg of the triangle is 15. Find the other leg.

4. Use the Pythagorean Triples to find the missing side of each right triangle:

(a) \[ \triangle ABC \]
(b) \[ \triangle ABC \]
(c) \[ \triangle ABC \]
(d) \[ \triangle LMN \]
(e) \[ \triangle ABC \]
(f) \[ \triangle ABC \]
(g) \[ \triangle ABC \]
(h) \[ \triangle ABC \]
(i) \[ \triangle ABC \]
Group 2:

1. A fireman's ladder, 100 feet long, reaches a point on a building that is 80 feet above the ground. If the ground is horizontal, how many feet from the foot of the building is the foot of the ladder?

2. Two boats leave the same dock at the same time, one traveling due north at the rate of 3 mph and the other due east at the rate of 4 mph. How many miles apart are the boats at the end of 5 hours?

3. The diagonal of a rectangle is 40 and its base is 32. Find the altitude of the rectangle.

4. A plane flies 240 miles due north, then 320 miles due west. How many miles must it fly to return to its starting point by the shortest route?

5. Two legs of a right triangle are in the ratio 3 : 4. Find the shorter of the legs if the hypotenuse is 75.

6. The sides of a rectangular field are 50 feet and 120 feet. How many seconds are saved if a man walking at the rate of 4 feet per second takes the diagonal shortcut across the field instead of walking along the two sides?

7. A ladder 52 feet long stands against a tree so that the foot of the ladder is 20 feet from the foot of the tree. How many feet up the tree does the ladder extend?

8. A right triangle is inscribed in a circle whose radius is 13. One of the sides of the triangle is 10. Find the length of the other side.

9. Dr. Smith's home is 5 miles due north of the town hospital, while Dr. Adams lives 12 miles due west of the same hospital. On a map having a scale of 2 miles per inch, how many inches apart are their homes?

10. The diagonals of a rhombus are 20 and 48. Find the perimeter of the rhombus.