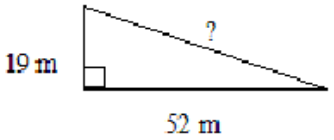
Worksheet: Pythagorean Theorem Problems

Multiple Choice

Identify the choice that best completes the statement or answers the question.

____ 1. What is the measure of the missing length?

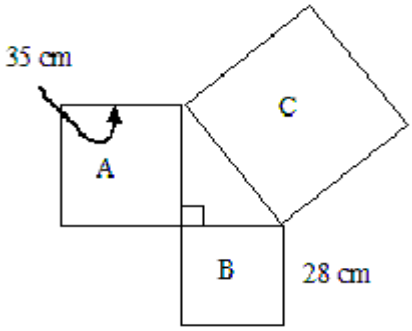


a. 55 m
b. 57 m
c. 63 m
d. 71 m

____ 2. Ms. Lange drove about 150 km east from La Sarre, to Senneterre, Quebec. She drove about another 75 km north to Lebel-sur-Quévillon. What is the approximate air distance from La Sarre to Lebel-sur-Quévillon, Québec?

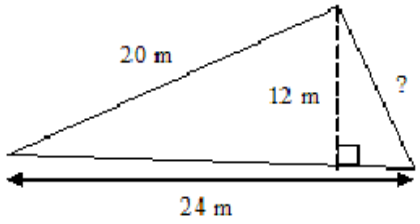
a. 160 km
b. 168 km
c. 175 km
d. 225 km

____ 3. What is the area of Square C?



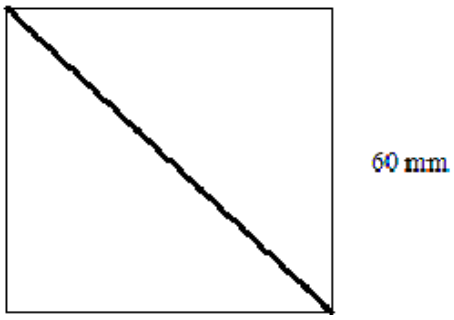
a. 90 cm^2
b. 1960 cm^2
c. 2009 cm^2
d. 3969 cm^2

____ 4. What is the measure of the missing length?



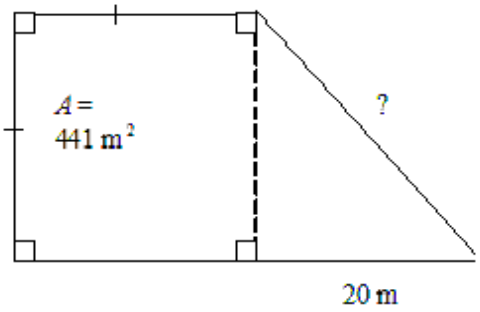
a. 13 m
b. 14 m
c. 15 m
d. 16 m

____ 5. What is the measure of the diagonal of the square to the nearest tenth of a millimetre?



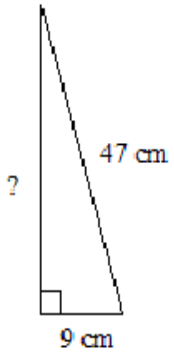
a. 18.9 mm
b. 60.0 mm
c. 75.0 mm
d. 84.9 mm

____ 6. What is the measure of the hypotenuse?



a. 13 m
b. 20 m
c. 20.5 m
d. 29 m

____ 7. What is the measure of the missing length to the nearest tenth of a centimetre?

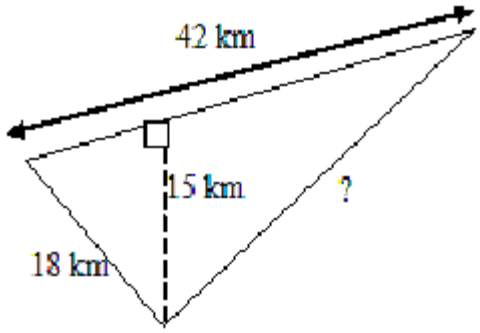


a. 20.6 cm
b. 28.0 cm
c. 46.1 cm
d. 47.9 cm

____ 8. A ship's guidance system measures that the ship is 380 m from the top of a lighthouse. The top of the lighthouse is 88 m above sea level. How far is the ship from the lighthouse to the nearest tenth of a metre?

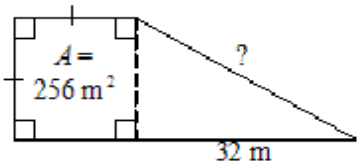
a. 182.9 m
b. 234.0 m
c. 369.7 m
d. 390.1 m

____ 9. What is the measure of the missing length?



a. 28 km
b. 35 km
c. 37 km
d. 38 km

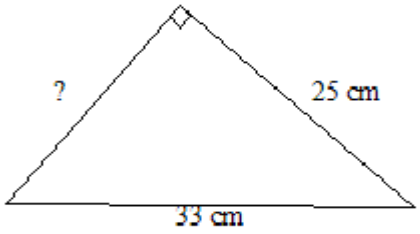
____ 10. What is the measure of the hypotenuse to the nearest tenth of a metre?



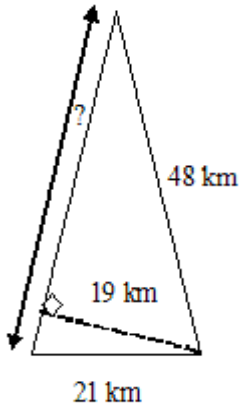
a. 35.8 m
b. 45.3 m
c. 64.0 m
d. 90.5 m

Short Answer

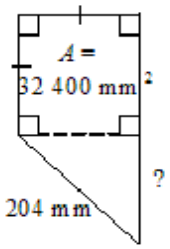
11. Determine the missing length. Explain how you found your answer.



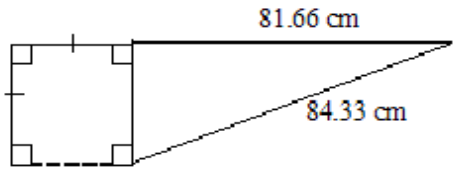
12. Calculate the missing length.



13. Determine the missing length.



14. Determine the area and side length of the square. Explain how you found your answers.



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Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 REF: Knowledge and Understanding
   OBJ: 8.3 - The Pythagorean Theorem
2. ANS: B PTS: 1 REF: Application OBJ: 8.3 - The Pythagorean Theorem
3. ANS: C PTS: 1 REF: Knowledge and Understanding
   OBJ: 8.3 - The Pythagorean Theorem
4. ANS: B PTS: 1 REF: Knowledge and Understanding
   OBJ: 8.3 - The Pythagorean Theorem
5. ANS: D PTS: 1 REF: Application OBJ: 8.3 - The Pythagorean Theorem
6. ANS: D PTS: 1 REF: Thinking OBJ: 8.3 - The Pythagorean Theorem
7. ANS: C PTS: 1 REF: Knowledge and Understanding
   OBJ: 8.3 - The Pythagorean Theorem
8. ANS: C PTS: 1 REF: Application OBJ: 8.3 - The Pythagorean Theorem
9. ANS: B PTS: 1 REF: Knowledge and Understanding
   OBJ: 8.3 - The Pythagorean Theorem
10. ANS: A PTS: 1 REF: Thinking OBJ: 8.3 - The Pythagorean Theorem

SHORT ANSWER

11. ANS:

    22 cm; I used the Pythagorean Theorem, $a^2 + b^2 = c^2$ and substituted 25 for b and 33 for c. I squared both numbers and subtracted 625 from both sides to get 464. I took the square root of 464 to get $a = 21.54066$. I rounded to 22 cm.

    PTS: 1 REF: Communication OBJ: 8.3 - The Pythagorean Theorem
12. ANS:
    53 km

    PTS: 1 REF: Knowledge and Understanding OBJ: 8.3 - The Pythagorean Theorem
13. ANS:
    96 cm

    PTS: 1 REF: Thinking OBJ: 8.3 - The Pythagorean Theorem
14. ANS:

    $A = 443.19 \text{ cm}^2$, side length = 21.05 cm

    I saw that the triangle adjacent to the square was a right triangle so I used the Pythagorean Theorem, $a^2 + b^2 = c^2$ to find the smaller leg of the triangle, which also is a side of the square. I substituted 84.33 for c and 81.66 for b. I solved for a to get the side length. I squared the side length to get the area of the square.

PTS: 1 REF: Communication OBJ: 8.3 - The Pythagorean Theorem