Lesson 15: Informal Proof of the Pythagorean Theorem

Lesson Summary

Given a right triangle \( ABC \) with \( C \) being the vertex of the right angle, then the sides \( AC \) and \( BC \) are called the legs of \( \triangle ABC \), and \( AB \) is called the hypotenuse of \( \triangle ABC \).

![Diagram of a right triangle with labels a, b, and c.]  

Take note of the fact that side \( a \) is opposite the angle \( A \), side \( b \) is opposite the angle \( B \), and side \( c \) is opposite the angle \( C \).

The Pythagorean theorem states that for any right triangle, \( a^2 + b^2 = c^2 \).

Problem Set

For each of the problems below, determine the length of the hypotenuse of the right triangle shown. Note: Figures are not drawn to scale.

1.  

![Diagram of a right triangle with sides 3 and 9.]  

2.  

![Diagram of a right triangle with sides 2 and 8.]
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8. 

![Diagram of a right triangle with sides 5, 12, and hypotenuse c.] 

9. 

![Diagram of a right triangle with sides 8, 13, and hypotenuse c.] 

10. 

![Diagram of a right triangle with sides 7, 10, and hypotenuse c.] 

11. 

![Diagram of a right triangle with sides 9, 12, and hypotenuse c.] 

12. 

![Diagram of a right triangle with sides 5, 1, and hypotenuse c.]