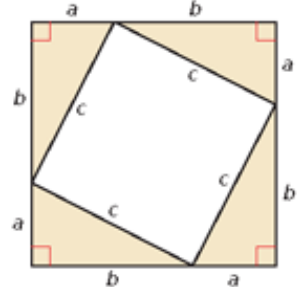


Name: _____ Date: _____ Band: _____
Geometry

Mathematician's Guide to Right Triangles and Trigonometry

You learned many different methods used to find side lengths and angle measures in right and non-right triangles. You also learned in what cases these methods are used and why these methods work. This study guide will help you organize everything you learned in one packet. I encourage you to provide examples so you can see what you learned in action.



The Pythagorean Theorem

1. What is the Pythagorean Theorem? How can you prove the Pythagorean Theorem?

2. What is a Pythagorean triple? Why are Pythagorean triples useful?

3. How do you apply the Pythagorean theorem? In what scenarios can you apply the Pythagorean Theorem (i.e. what would you need to know)? (Examples are helpful)

4. What is the Converse of the Pythagorean Theorem?

5. How do you apply the Converse of the Pythagorean theorem? How can you classify triangles using the Converse of the Pythagorean Theorem?

Special Right Triangles

6. What is the relationship among the side lengths of 45-45-90 triangles? 30-60-90 triangles? (Draw diagrams and give examples)

7. In what scenarios can you use special right triangles (i.e. what would you need to know)?

Similar Right Triangles

8. How do you identify similar right triangles?

9. How do you use similar right triangles to find side lengths of a right triangle?

Trigonometry

10. How is similarity in right triangles related to trigonometry? Why does it work?

11. What are the different trigonometric ratios? (Draw a diagram)

12. How is trigonometry used to find side lengths in a right triangle?

13. How is trigonometry used to find angle measures in a right triangle?

14. In what scenarios can you apply trigonometry (i.e. what would you need to know)?

Solving Right Triangles

15. What does it mean to solve a right triangle?

16. What methods could you use to solve a right triangle and when would they be appropriate?

Law of Sines and Law of Cosines

17. What are the Law of Sines and Law of Cosines? Why are these laws special?

18. When would you use the Law of Sines to solve a triangle? When would you use the Law of Cosines to solve a triangle?

19. What is a way to find the area of a triangle using trigonometry? (Give an example)