Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Week of Wednesday, January 2nd -Thursday, January 3rd Guided Notes: Pythagorean Theorem**

**Wednesday, January 2nd**

**> Do Now**

1. What are you most proud of last semester?
2. What is your academic goal for this 9 weeks?
3. What are you SPECIFICALLY going to do to reach that goal?
4. What must you change about yourself to reach that goal?

**> Pythagorean Theorem**

* Before we get started with our new unit, we must introduce some new **vocabulary**.
1. **Right Triangle** – a triangle that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. **Right Angle** – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Indicated by a \_\_\_\_\_\_\_ in a triangle.
1. **Legs** – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* A & B in the diagram
1. **Hypotenuse** – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a right triangle.
* C in the diagram.
1. **Pythagorean Theorem** – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* a2 + b2 = c2
* Where a & b are the legs & c is the hypotenuse

**> Why Use the Pythagorean Theorem?**

* The goal of the Pythagorean theorem is to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Formula:

**Identifying parts of the triangle: Identify each side as leg or hypotenuse**

|  |  |
| --- | --- |
| 1.  A C B | 2.  E D F |
| 3.  L N M | 4.  T W V |
| 5.  X 5  13 |

**Thursday, January 3rd**

**> Do Now:**

1. State the Pythagorean Theorem (formula).
2. Identify the variables in the Pythagorean Theorem.
3. Using the triangle, identify each side of the triangle.
 q

 s
 z

1. Explain how you determined which side was the hypotenuse.

**> Pythagorean Theorem**

* For any right triangle, the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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* The hypotenuse is the longest side opposite of the right angle.
* The formula for determining the missing side of a triangle is as follows:
	+ Where a and b are the legs and c is the hypotenuse

**> Using the Pythagorean Theorem**

* **General Steps to Solve for a Missing Side**
1. Check to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. If it is, **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** equation (a2 + b2 = c2)
3. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (across from the right angle) and **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
4. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (the other sides) **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
5. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** your numbers in the equation and solve for the missing side.

|  |
| --- |
| 1. Solve for the missing side. 6 X 8 |
| 2. A right triangle has a hypotenuse of 13 centimeters. One of the legs is 5 centimeters. What is the length of the other leg?  |
| 3. Mr. Lowe is measuring his TV. The TV is 36 inches wide and 24 inches tall. What is the length of the diagonal on the TV? (**HINT:** Draw a picture)  |
| 4. A student designed a flag for MASE and the diagonal distance is 5 ft. If the length of the flag is 4 ft, what is the width?ex4.tiff |
| 5. The following picture shows 2 paths from Nora’s house to her friends. Based on the diagram, what is the length of the route from Nora’s house to her friends using Hill Drive?ex5.tiff |
| 6. Solve for the missing side.   16ft C 5 40ft |
| 7. Solve for the missing side. 13 |
| 8. Dasha lives 15 miles east of Jayla. Jayla lives 26 miles north of Quinton. How far does Quinton live from Dasha? (**HINT:** Draw a picture) |
| 9. Firefighters have a 40 foot extension ladder. In order to reach 28 feet up a building, how far away from the building should the foot of the ladder be placed? (**HINT:** Draw a picture) |
| 10. What is the length of the hypotenuse? |
| 11. Solve for the missing side.  5 m 13 |
| 12. Solve for the missing side.  5 26 d |
| 13. A painting in the shape of a right triangle is 5 inches high and 12 inches long. What is the length of the diagonal of the painting? |
| 14. The legs of a right triangle are 5 cm and 12 cm long. What is the length of the hypotenuse? |