Right Triangle Relationships

Follow instructions carefully, making observations and recording them in your notebook.

1. Observe the triangles below. Name them and list their obvious characteristics.
2. Use a tool (or calculate if possible) to find the missing measures of all three triangles. Use a chart like the one below to record your data.

|  |  |  |
| --- | --- | --- |
| $$∆EAD$$ | $$∆???$$ | $$∆???$$ |
| $$m∠EAD=$$ | $$m∠???=$$ | $$m∠???=$$ |
| $$m∠ADE=$$ | $$m∠???=$$ | $$m∠???=$$ |
| $$m∠DEA=$$ | $$m∠???=$$ | $$m∠???=$$ |
| $$m\overbar{EA}=$$ | $$m\overbar{??}=$$ | $$m\overbar{??}=$$ |
| $$m\overbar{AD}=$$ | $$m\overbar{??}=$$ | $$m\overbar{??}=$$ |
| $$m\overbar{DE}=$$ | $$m\overbar{??}=$$ | $$m\overbar{??}=$$ |

1. For each triangle, form ratios using its segment lengths, then write them in decimal form.
2. What have you observed about these ratios?
3. Create a hypothesis about the relationships among the lengths of the sides of the right triangles based on the information that your group gathered and discussed.
4. Draw a set of 30-60-90 triangles similar to the one below and repeat this process. Does your hypothesis stand?

21°

21°

21°

**A**

**G**

**F**

**E**

**D**

**C**

**B**

**A**

**A**