

Good morning:

Have workbook hw out on desk during "Journal" in notes



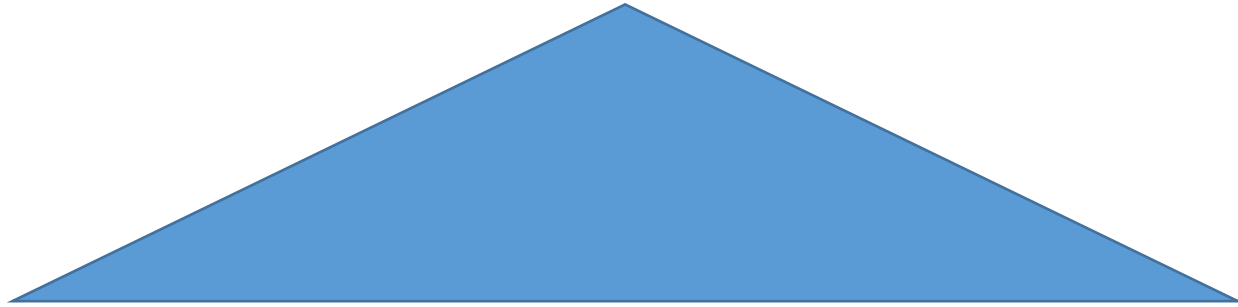
1. An mechanical engineer has three metal beams measure 12m, 10m, and 5m. Can they fit together to make a triangular brace?
2. Another engineer's measurements have lengths of 4m and 11m that need to be fitted by a triangular hinge. What are all the possible values for the length of the third side?

Goals and Homework

- Goals
 - Write a two-column geometry proof
 - Use the transitive and reflexive properties
 - Know which congruence “shortcuts” work, and which do not
- Homework
 - Worksheet: #1-17

Go over last night's homework

How many geometric “parts” are in a triangle?

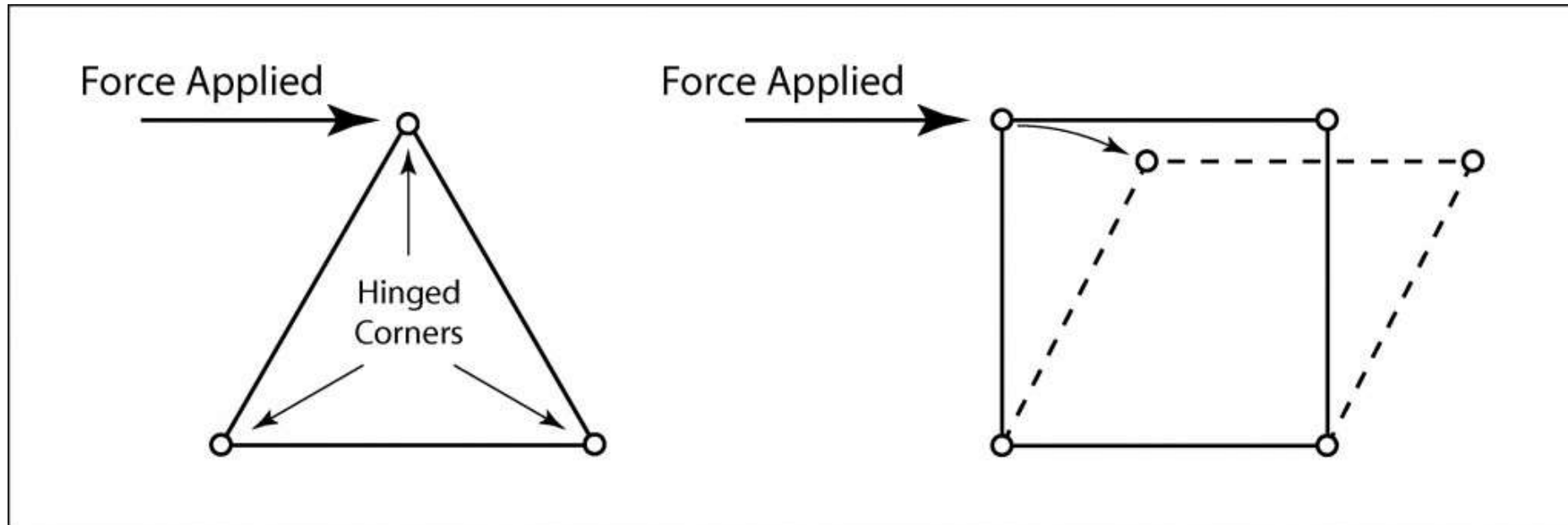


Do we need to show that all six parts match for two shapes to be identical?

- There are **4 shortcuts** that save us time and work.
 - We will discover them in the lab.
- Instead of matching all six parts, you only need to match 3 parts. Saves half the work.

Why do the shortcuts work?

- Triangle Rigidity:



But first, proofs:

| <u>Statements</u> | <u>Reasons</u> |
|-------------------|----------------|
| | |

- Reasoning argument that starts with given information and arrives at conclusion.
- How to write a geometric proof:
 - Two columns
- First Reason should always be “Given”
 - Starting with provided information, list under Statements
- Final Statement should always be what was to be proven
 - The final reason will differ from problem to problem

Important reasons to remember

- **The transitive property**

- For example

- $\angle A \cong \angle E$

- $\angle E \cong \angle F$

- So....

Important reasons to remember

- **The reflexive property**

- “Reflection”
- Used when two shapes/triangles share a side, so it is congruent to itself

Let's do an example

- Handout

The “included” angle or side

- Included = in the middle, belonging
- Draw triangle HTR. What angle is included between HT and TR?

For computer lab:

- <http://mgeo.weebly.com/tcs>
- Bring lab worksheet, pencil, ruler (optional)
- Make sure speakers are muted