

3d NOTES Basic Proofs for Geometry.pdf - [Geometry: Week 2.2] Day 1 - Go P...

1 / 4

Find

TERM	DESCRIPTION
PROOF	Is a logical argument that shows a statement is true. This can be in the form of a two column proof using <u>statements</u> and corresponding reasons to show the statements are true.
POSTULATE	Is a statement that does not need to be <u>Proven</u> .
THEOREM	Is a statement that has to be <u>Proven</u> .

Logical reasoning can be applied to the following situation:
You are going to school and your car does not start. What is wrong with your car?

Flow chart:

```
graph TD
    A[Car does not start] --> B{Is the battery dead?}
    B --> C[Yes. Replace battery]
    B --> D{No, the battery is good. Are the battery posts corroded?}
    D --> E[Yes. Clean the posts.]
    D --> F{No. Is a battery cable faulty?}
    F --> G[Yes. Replace cable]
```

Oct 7-4:34 PM

3d NOTES Basic Proofs for Geometry.pdf - [Geometry: Week 2.2] Day 1 - Go P...

1 / 4

Find

No. Is a battery cable faulty?

Yes. Replace cable

No. Call a friend for a ride. YOU need to get to school.

EXAMPLE 1:

Given: $AB = 5$, $BC = 7$
Prove: $AC = 12$

Flow Chart:

```
graph LR
    A["Given: AB = 5, BC = 7"] -- "Segment Addition Post" --> B["AC = AB + BC"]
    B -- "Substitution" --> C["AC = 5 + 7"]
    C -- "Simplify" --> D["AC = 12"]
```

Geometry Unit 3 - Reasoning & Proofs w/ Congruent Triangles Page 151

Notes: BASIC PROOFS OF GEOMETRY

Oct 7-4:35 PM

3d NOTES Basic Proofs for Geometry.pdf - [Geometry: Week 2.2] Day 1 - Go P...

2 / 4

Find

Notes: BASIC PROOFS OF GEOMETRY

QUICK CHECK: COLUMN PROOF

Fill in the Reasons of the proofs below choosing from the set of reasons in the box below.

Subtraction Property of Equality Given Substitution Property of Equality
Simplify Definition of Angle Bisector Transitive Property of Equality

Given: $m\angle 1 + m\angle 2 = 90^\circ$
 $m\angle 2 = 48^\circ$
Prove: $m\angle 1 = 42^\circ$

1

2

1

2

3

4

Statements	Reasons
1) $m\angle 1 + m\angle 2 = 90^\circ$; $m\angle 2 = 48^\circ$	1) <u>Given</u>
2) $m\angle 1 = 90^\circ - m\angle 2$	2) <u>Subtraction Property</u>
3) $m\angle 1 = 90^\circ - 48^\circ$	3) <u>Substitution</u>
4) $m\angle 1 = 42$	4) <u>Simplify</u>

EXAMPLE 2:

Given: \overline{AB} bisects $\angle CAD$

Oct 7-4:36 PM

3d NOTES Basic Proofs for Geometry.pdf - [Geometry: Week 2.2] Day 1 - Go P...

2 / 4

Find

1) $m\angle 1 + m\angle 2 = 90^\circ$; $m\angle 2 = 48^\circ$

2) $m\angle 1 = 90^\circ - m\angle 2$

3) $m\angle 1 = 90^\circ - 48^\circ$

4) $m\angle 1 = 42$

EXAMPLE 2:

Given: \overline{AB} bisects $\angle CAD$
 $\angle 2 \cong \angle 3$
Prove: $\angle 1 \cong \angle 3$

1

2

3

4

1) \overline{AB} bisects $\angle CAB$

2) $\angle 1 \cong \angle 2$

3) $\angle 2 \cong \angle 3$

4) $\angle 1 \cong \angle 3$

Statements	Reasons
1) \overline{AB} bisects $\angle CAB$	1) <u>Given</u>
2) $\angle 1 \cong \angle 2$	2) <u>Definition Angle Bisector</u>
3) $\angle 2 \cong \angle 3$	3) <u>Given</u>
4) $\angle 1 \cong \angle 3$	4) <u>Transitive</u>

Choices for Reasons Column:

Oct 7-4:37 PM