Geometry

2.6 Prove Statements about Segments and Angles

Given: A cold person out in the woods camping with newspaper and matches in their backpack

Prove: Start a campfire

Cold person with newspaper and matches in their backpack (given)

Get dry wood from ground (need something to burn)

Break some wood into tender (big pieces of wood don’t readily start on fire)

Put the rest of the wood in a pile near the fire location (need something handy to burn)

Get newspaper from backpack (need something to start fire)

Get matches from backpack (need something to set fire)

Clear area (don’t want to start forest fire)

Crumple newspaper and put on ground (newspaper is good for starting fires)

Pile tender around the newspaper to make a “tepee”. (once the newspaper is started on fire, its heat will start the tender on fire)

Strike matches (matches have to be burning before it will start the paper)

Use lit matches to start paper on fire in several places (paper is the easiest thing to start on fire)

Add bigger pieces of dry wood as the fire gets larger (the tender will burn out quickly)

You now have a campfire (bigger pieces of wood are burning now and producing heat)

## Congruence of segments and angles is reflexive, symmetric, and transitive.

Writing proofs follow the same step as the fire.

prove

given

1. Write the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ written at the top for reference

given

1. Start with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as step 1

logical

1. The steps need to be in an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ order

being in the problem

1. You cannot use an object without it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

object

1. Remember the hypothesis states the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ you are working with, the conclusion states what you are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with it

hypotheses

doing

1. If you get stuck ask, “Okay, now I have \_\_\_\_\_\_\_. What do I know about \_\_\_\_\_\_ ?” and look at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of your theorems, definitions, and properties.

Complete the proof by justifying each statement.

**P Q R S**

Given: Points P,Q, R, and S are collinear

Prove: PQ = PS – QS

|  |  |
| --- | --- |
| Statements | Reasons |
| Points P,Q, R, and S are collinear | Given |
| PS = PQ + QS | Subtraction  Segment Addition Postulate |
| PS – QS = PQ | Symmetric |
| PQ = PS – QS |  |

Write a two column proof

Given: ,

Prove:

|  |  |
| --- | --- |
| Statements | Reasons |
| AC ≅ DF, AB ≅ DE | Given |
| AC = DF, AB = DE | Def Congruent Segments |
| AC – AB = DF – DE | Subtraction |
| AC = AB + BC, DF = DE + EF | Segment Addition Postulate |
| AC – AB = BC, DF – DE = EF | Subtraction  Substitution |
| DF – DE = BC  BC = EF | Substitution |
| BC ≅ EF | Def Congruent Segments |
|  |  |

Assignment: 116 #2-12 even, 16, 18, 22-26 even, 30-36 all = 18 total