Math 3 6.2 Proofs (Parallel Lines and Triangles) Unit 6

*EQ: How can we prove lines to be parallel and prove triangles to be congruent?*

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| What can we use to Prove? |
| Definition of Vertical Angles | Linear Pair Postulate | Definition of Midpoint |
| Definition of Supplementary Angles | Corresponding Angle Postulate | Definition of Bisect |
| Definition of Parallel Lines | Alternate Exterior Angle Theorem | Substitution Property |
| Definition of Perpendicular Lines | Alternate Interior Angle Theorem | Angle Addition Postulate |
| Reflexive Property (AB = AB) | Transitive Property (a = b, b = c, then a = c) | Segment Addition Postulate |



**Example 1:**



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| Triangle Congruence |
| **Name:** | **Picture** | **Definition** | **The Donkey Theorem:**You can’t travel (AAA) by Donkey (SSA) to triangle congruence!https://upload.wikimedia.org/wikipedia/en/1/14/Donkey_from_Shrek.jpg |
| Angle-Side-Angle (ASA) | Image result for blank triangle Image result for blank triangle |  |
| Side-Angle-Side (SAS) | Image result for blank triangle Image result for blank triangle |  |
| Side-Side-Side (SSS) | Image result for blank triangle Image result for blank triangle |  |
| Angle-Angle-Side (AAS) | Image result for blank triangle Image result for blank triangle |  |
| Hypotenuse-Leg (HL) | Image result for blank right triangle Image result for blank right triangle |  |

 **Example 2:** Given: J is the midpoint of IL.

 J is the midpoint of HK.

 Prove: ∆IJH $≅$ ∆LJK

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| **Statement:** | **Reason:** |
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**You Try!** Given: WX $∥$ YZ, WX $≅$ YZ

 Prove: ∆*WXZ* $≅$ ∆*YZX*

*(Hint: It should take anywhere from 4-5 steps)*



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| **Statement:** | **Reason:** |
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**You Try!**

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| **Statement:** | **Reason:** |
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