Practice worksheet | Proof and circle geometry

Congruence and similarity in geometric proofs

Name: _____ Date: _____

6 questions | 16 marks

1. Triangles ABC and DEF have $AB = DE$, $BC = EF$ and $AC = DF$. State a valid conclusion with a test. [2 marks]

2. A student proves all three corresponding angles equal and claims congruence. Give a concrete counterexample. [2 marks]

3. Triangles ABC and DEF are similar in that order. $AB = 6$, $BC = 9$ and $DE = 10$. Find EF. [2 marks]

4. AB and AC are tangents from A to a circle with centre O. Prove AO bisects angle BAC. [4 marks]

5. An altitude to the hypotenuse divides it into lengths 4 and 9. Find the altitude and explain the theorem used. [3 marks]

6. In the same altitude construction, the hypotenuse pieces are p and q. Explain why $p+q$ is not the altitude in general. [3 marks]