## Homework Week 7 Due Next Wednesday 10/09/2014

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mark: / 30+8**

**1. Label the sides of the following triangles (using O, A, H).** [ 2 marks]

a.



b.



**2. What are sin θ, cos θ and tan θ for each of the above triangles?** [6 marks]

a.

sin θ= cos θ= tan θ=

b.

sin θ= cos θ= tan θ=

**3. For each right angled triangle, write down the correct trigonometric equation and solve for the unknown sides, x.** [12 marks]

a.



b.



c.



**4. ABH is a right triangle with a right angle at H. Also, BHC is a right angled triangle at H. Angle A is 39o; BH is 11 cm and AC is 19 cm. What is x, the length of BC? (correct to 2 decimal places).** [5 marks]



**5. ABC is a right triangle with a right angle at A. Find x, the length of DC.** [5 marks]

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***Bonus***

**6. Use the right angled triangle from Question 1a. Instead of using angle B as the reference angle, use angle A as the reference angle θ (which is the angle adjacent to side AC). What is the sum of angle A and angle B (Remember they are complementary angles)? Calculate sin θ, cos θ and tan θ. Hence find the relationship between sin A and cos B and the relationship between tan A and tan B.** *(Hints: 1) You need to redraw the triangle with A, B, and C correctly labelled. 2) You can multiply tan A and tan B to find the relationship. 3) A, B and C are referred to the three angles of the triangle in this case.)* [Total marks:8]

 *Step 1: Redraw the right angled triangle.* [1 mark]

*Step 2: What is the sum of angle A and angle B. Find sin A, cos A and tan A.* [4 marks]

*Step 3: Compare your sin A with cos B, sin B with cos A and tan A with tan B. Note: You have already found the sin B, cos B and tan B in Question 2 (a).* [3 marks]