**Multiple Right Triangles Assignment – Value 80 – DECEMBER 12, 2016**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DUE: **DECEMBER 13, 2016**

**tan ϴ = opposite sin ϴ = opposite cos ϴ = adjacent**

 **adjacent hypotenuse hypotenuse**

1. Determine the length of x and y in each figure. Express your answers to the nearest whole number. **SHOW FORMULAS AND CALCUALTIONS ON YOUR OWN PAPER – Value 40 (10 pts. each)**
2. (b)

**250**

**Y**

**350**

**X**

**Y**

**20m**

**X**

**350**

**150**

**12**

**120**

1. (d)

**250**

**280**

**62**

**Y**

**X**

**350**

**X**

**X**

**360**

1. Determine the measure of the two unknown angles in each figure. Express your answer to the nearest degree. SHOW FORMULAS AND CALCULATIONS – **Value 20 (10 pts each)**

(a) (b)

**Ɵ1Ɵ**

**Ɵ1Ɵ**

**68**

**40**

**Ɵ2Ɵ**

**52**

**22**

**90**

**45**

**Ɵ2Ɵ**

**WORD PROBLEMS – Value 20**

**SHOW FORMULAS AND CALCULATION FOR EACH ON YOUR OWN PAPER**

1. A radio antenna is supported by two guy wires. Wire 1 is 25 ft. long and makes an angle of elevation of 40 degree with the ground. Wire 2 is attached to the ground 14 ft. from the base of the antenna and makes an angle of elevation of 52 degrees with the ground. Both wires are attached to the top of the antenna. **Value 10**
2. Complete the diagram below with the information provided above ON YOUR OWN PAPER.
3. How tall is the antenna (to the nearest foot)?
4. Bill works as a bridge inspection assistant for an engineering firm in St. John’s, NL. As part of his job, he needs to continuously practice making the measurements and calculations he uses when inspecting in-service bridges.

If the deck of the bridge is cracked or unsafe, it may need to be replaced. Bill practices calculating the length of the deck.

Determine the ***total length*** of the deck needed between cable A and cable B, to the nearest meter. **Value 10**

**320**

**480**



**Y**

**X**

**140 m**

**deck**

**A**

**D**

**B**

**C**