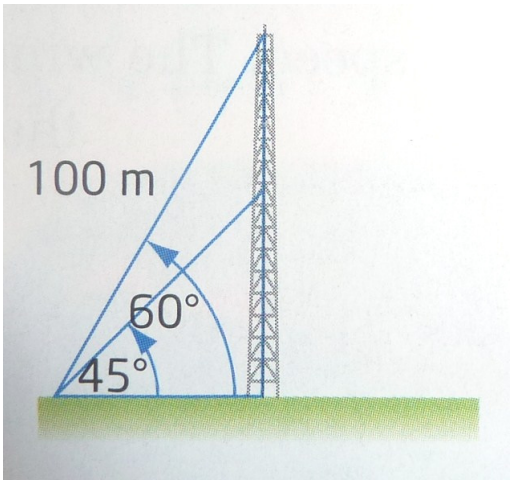
/22K	/9A	/C	/8T	Total /39

Name: _____ Date: _____

MCR3U Quiz: Trigonometry Cosine law: $c^2 = a^2 + b^2 - 2ab\cos C$

/4 A

1. A radio antenna is supported by guy wires. One guy wire is 100 m long and runs from the top of the antenna to an anchor point on the ground so that it makes an angle of 60 degrees with the ground. A second guy wire is being attached from the same anchor point to the antenna as shown in the diagram. Determine the space between the two points where the guy wires attach to the antenna.



/4 T

2. Determine another angle that has the same trigonometric ratio as the angle given. Sketch each angle.

a) $\tan 20^o$ b) $\cos 140^o$

/5
K

3. Solve the triangle ABC if: A = 33°, b = 14 ft, c = 7 ft.

/3
K

4. Determine an exact value for $\sin\theta$ if the point $(3, -5)$ lies on the terminal arm of θ.

/5
K

5. Determine the missing angles in triangle ABC if: A = 23°, a = 8 m, c = 14 m.

/5
K

6. Determine the exact value of each trigonometric ratio. Show your work.

a) $\tan 60^o$

b) $\cos 135^o$

Quotient Identity	Pythagorean Identity	Reciprocal Identities
$\tan\theta = \frac{\sin\theta}{\cos\theta}$	$\sin^2\theta + \cos^2\theta = 1$	$\csc\theta = \frac{1}{\sin\theta}$ $\sec\theta = \frac{1}{\cos\theta}$ $\cot\theta = \frac{1}{\tan\theta}$

/4 K

/4 T

8. Use the basic identities provided above to prove the following identities.

a) $\sec^2\theta = \tan^2\theta + 1$

b) $\tan^2\theta - \sin^2\theta = \tan^2\theta\sin^2\theta$

/5
A

7. Neo parks his car in an alley and runs 30 m north to a park, then turns 40 degrees to his right and runs 20 m through the park to a tall building. He climbs to the 3rd floor of the building (each floor is 4 m high) and enters through an open window. Determine how far Neo is from his car in a direct line.