Content /50	Communication Level	%

MCR 3U- Unit 4 Practice Test Name:_____

Self-Evaluation: % Homework Completed?	

T1: Determine the values of the trigonometric ratios for angles less than 360°, prove simple trigonometric identities and solve problems using the primary trigonometric rations, the sine law and the cosine law.

Part A: Without a calculator. Show your thinking, where required. Use exact values.

1 . For the angle $\theta = 240°$, draw a diagram to show the angle in standard position, and state a negative and a different positive co-terminal angles. [2 marks]

2. Consider ∠C, such that $sinC = -\frac{2}{7}$. [6 marks]

a. Possible quadrants in which ∠C may lie: _____

b. Given that cosC is negative, how does your answer to part a) change? _____

c. Find the coordinates of point P on the terminal arm of ∠C. _____

d. Write exact expressions for the other two primary trig ratios for ∠C _____

3. Determine the exact trigonometric ratios. **Show work for full marks.** [11 marks]

a) $tan\,45°$ b) $sec30°$ c) $cos\ 240°$ d) $\sin 315°$

e) $\tan 90°$ f) $\cot(-210)°$ g) $sin480°$

4. Determine the value(s) of each angle. Note restrictions on the domain. [5 marks]

a) $tan\theta = -\frac{1}{\sqrt{3}}$, if $0° \le \theta \le 360°$ b) $sec\theta = -2$, if $90° \le \theta \le 180°$ c) $sin\theta = -1$, if $0° \le \theta \le 360°$

5. Evaluate with exact values. Show all of your thinking. [3 marks]

$sin^2 45°(cot300°) - cos180°(cos210)°$

Part B: With a calculator. Show all work. [14] **Name:**_____

Round lengths to one decimal place and angles to nearest degree.

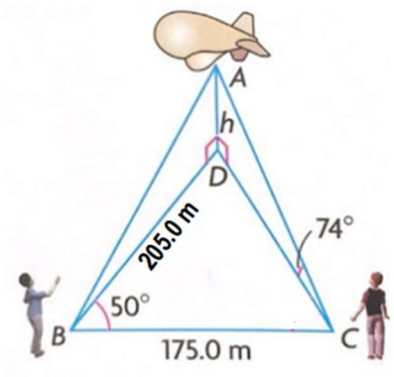
6. Determine the values of the angle(s) if $0° \leq \theta \leq 360°$, given: [6 marks]

a) $\sin\theta = -0.79$ b) $\csc\theta = 1.1324$ c) $\cos\theta = -\frac{2}{7}$

7. Evaluate $\sec(-71°)$, to 4 decimal places. [2 marks]

8. Given ΔDEF, if $\angle D = 41°$, *d = 23cm* and *e = 27cm*, find the other angles. Include a diagram. [4 marks]

9. As a project, a group of students was asked to determine the altitude, h, of a promotional blimp. The students' measurements are shown in the diagram below. Determine h, to the nearest tenth of a meter. [3 marks]



10 . Prove the following identities. **SHOW all steps for full marks.** [2,3,3 marks]

a) $sec\theta\ cot\theta = csc\theta$

b) $\cot^2 x\,(1 + \tan^2 x) = \csc^2 x$

c) $\frac{cos^2x - sin^2x}{cos^2x + sinxcosx} = 1 - tanx$