Pre-Calculus 110

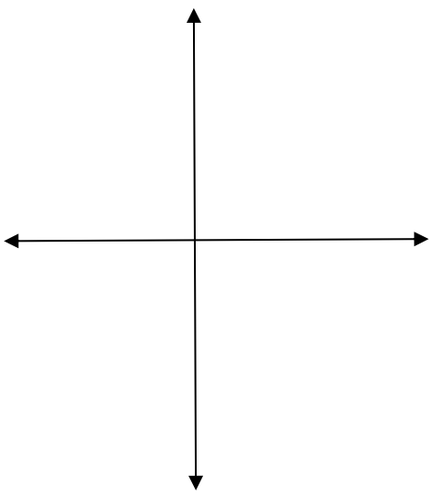
Unit Test: Trigonometry **Name:**_____

Free Response **[45 MARKS]**

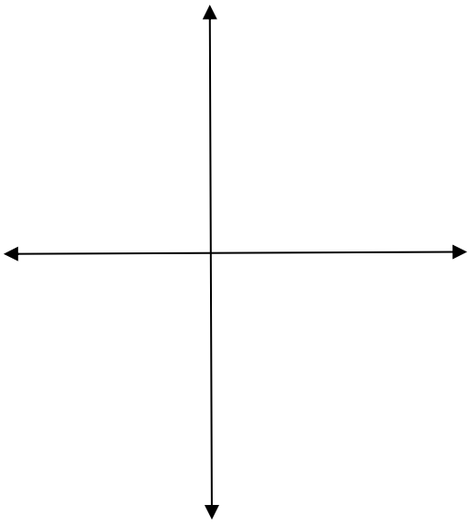
Show all work for each of the following in the space provided.

1. Sketch the terminal arm for each of the following rotation angles and clearly identify the measure of the reference angle on your diagram. [4]

(a) $475°$



(b) $-140°$



2. The terminal arm of θ is situated such that $\sec\theta > 0$ and $\sin\theta = -\frac{\sqrt{11}}{6}$.

(a) Without the aid of a calculator, determine the **exact** value of $tan^2\theta - sec^2\theta$ in **simplest** form. [5]

(Sketch must be provided)

(b) Given that $720° \leq \theta \leq 1080°$, determine the measure of θ in standard position. [2]

3. Without the use of a calculator, and by providing a sketch for each angle, evaluate the following expression: [15]

$$3\sec(-210°)\cot(600°)-2\csc(630°)+\sqrt{2}\sin(315°)-\cos^2(-1035°)\cos(12600°)$$

4. Fill in the blanks: [5]

(a) The principal angle of $-38955°$ is _____.

(b) The **first** negative angle co-terminal with 15897° would be _____.

(c) $\sec(-354°)$ =_____

(d) Given that $\cot\theta < 0$ *and* $\sin\theta < 0$, then θ must be located in quadrant _____.

(e) If $\tan\theta = -\frac{7}{12}$ and $0° \le \theta \le 180°$, then the measure of θ in standard position is _____.

5. Given that the ordered pair $(-2,\ 2\sqrt{3})$ lies on the terminal arm of angle θ…

(a) Determine the **exact value** of $\sin\theta\cot\theta$ in **simplest** form. ***(Sketch must be provided)*** [4]

(b) Given that $-720° \le \theta \le -360°$, determine measure of θ in standard position. [2]

6. (a) Given that $\cos\theta = -0.7193$ and $-720° \le \theta \le 540°$, determine **ALL** possible values of θ. [4]

(b) Given that $\csc\theta = 2.3662$ and $-1080° \le \theta \le -270°$, determine all possible values of θ. [4]