# STATION A

1.  The point (5,-7) lies on the terminal arm of angle $\theta$. Determine the value of:
    a)   $\cos\theta$                              b)   $\cot\theta$

2.  If   $\sec\theta = \dfrac{-8}{3}$, $180° \le \theta \le 270°$ , determine the value of $\theta$.

3.  Determine the exact simplified value of the following.  Show all your work.

$$\left(\sin(-45°)\right)^2 (\cos 210°)^2 - (\cos 180°)(\cot 315°)$$

# STATION B

1. Determine the value of the following.  Use exact values where possible.
   a) sin 225          b) tan 120          c) cos 160          d) sec 330

2. State an expression equivalent to:

   a) $\cos^2\theta - 1$          b) $\dfrac{1}{\csc\theta}$          c) $\dfrac{\cos^2\theta}{\sin^2\theta}$

# STATION C

1. Determine the value of angle $\theta$, for $0° \leq \theta \leq 360°$.

   a) $\cos\theta = \dfrac{-\sqrt{2}}{2}$

   b) $\cot\theta = \sqrt{3}$

   c) $\sin\theta = -1$

   d) $\tan\theta = -2.1445$

2. Determine the number of triangles possible.  Do NOT solve.

   a) $\triangle ABC, A = 135°, a = 12\text{cm}, b = 9\text{cm}$

   b) $\triangle DEF, D = 42°, d = 5\text{cm}, e = 7\text{cm}$

   c) $\triangle GHI, G = 72°, g = 17\text{cm}, h = 15\text{cm}$

# STATION D

Solve the following triangles.  Include a diagram as part of your solution.

a)  △ABC, B = 90°, C = 50°, a = 12cm

b)  △DEF, D = 110°, e = 17.2cm, f = 5.9cm

# STATION E

1. Determine the value of the measure of the smallest angle in a triangle with sides of 4m, 6m, and 8m.   Include a diagram as part of your solution.

2. Julia enters a road race that starts on Cavanagh Side Road.  Runners leave point A and run for 8km at an angle of $24°$ to Cavanagh Side Road to reach checkpoint B.  At checkpoint B runners turn and run 4 km to the finish line at point C which is also located on Cavanagh Side Road.  When Julia finishes, how far is she from where she started the race?

# STATION F

Prove the following identities.

a)     $\tan x + \cot x = \csc x \sec x$

b)     $\dfrac{\sin^2 x}{1 - \cos x} = 1 + \cos x$

# STATION G

# STATION H