



PART A - NO CALCULATORS PERMITTED

1) Given that point P(-1,-2) lies on the terminal arm. State the **exact** primary and reciprocal trigonometric ratios for the angle made with the horizontal initial arm. Draw a supporting diagram, and be sure to rationalize all ratios. **[6 Marks]**

2) Find the exact value of the following trigonometric expressions. Answer must be written with one rationalized denominator to receive full credit. **[3, 4 Marks]**

a) $(150) + \cos(225)$

b) $\frac{\sin(315)}{\tan(60)} + \sin(270)$

3) Determine θ if $0^\circ \leq \theta \leq 360$. **[3, 5 Marks]**

a) $-3 = \sqrt{3} \cdot \tan \theta$

b) $2\theta = 8$

PART B - CALCULATORS PERMITTED

1) State the **number of triangles** that would be formed in each of the following cases. **DO NOT SOLVE THE TRIANGLES.** [4 marks]

i) $\triangle ABC$, $\angle A = 32^\circ$, $a = 17$ cm, and $c = 5$ cm Number of solutions: _____

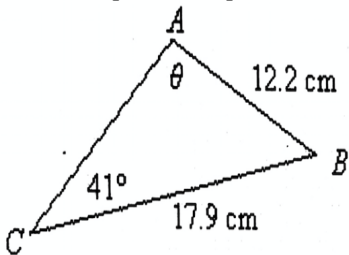
ii) $\triangle XYZ$, $\angle X = 47^\circ$, $x = 33$ km, and $y = 34$ km Number of solutions: _____

iii) $\triangle RST$, $\angle S = 68^\circ$, $s = 9$ m, and $r = 34$ m Number of solutions: _____

iv) $\triangle JIN$, $\angle J = 24^\circ$, $\angle N = 40^\circ$, and $j = 19$ km Number of solutions: _____

2) Determine the side AC to the nearest tenth of a cm. The diagram is not drawn to scale.

[5 marks]



3) Tower Observers at Point A and Point B, who stand on level ground on opposite sides of a tower, measure the angle of elevation to the top of the tower to be 33° and 49° , respectively. Another point C is 120 meters from point B. The distance between point A and C is 214.5 m and $\angle BCA$ is 82° . Find the height of the tower to the nearest meter. [6 Marks]

