**The City School**

Boys Campus North Nazimabad

**Mathematics(4024)**

**Revision Worksheet**

**Topic: Trigonometry and Bearings**

Q1. P, Q, R and S are ferry ports on a wide river, as shown in the diagram above.

A ferry sails from P, stopping at Q, R and S before returning to P.

(a) Q is 7.2 kilometers due south of P and R is 10.3 kilometers due east of Q.

(i) Show by calculation that angle QPR = 55°. [2]

(ii) Write down the bearing of R from P. [1]

(b) The bearing of S from P is 098° and SP = 13.5 km.

(i) Explain why angle RPS = 27°. [1]

(ii) Angle PRS = 90°. Calculate the distance RS. [2]

(iii) Find the total distance the ferry sails. [1]



Q2. In triangle PQR, angle QPR is acute, PQ = 10 cm and PR = 14 cm.

(a) The area of triangle PQR is 48 cm2.

Calculate angle QPR and show that it rounds to 43.3°, correct to 1 decimal place.

You must show all your working. [3]

(b) Calculate the length of the side QR. [4]

Q3. The diagram shows three straight horizontal roads in a town, connecting points P, A and B.

PB =250 m, angle APB = 23° and angle BAP = 126°.

(a) Calculate the length of the road AB. [3]

(b) The bearing of A from P is 303°.

Find the bearing of

(i) B from P, [1]

(ii) A from B. [2]

Q4. ABCD is a quadrilateral and BD is a diagonal.

AB = 26 cm, BD = 24 cm, angle ABD = 40°, angle CBD = 40° and angle CDB = 30°.

(a) Calculate the area of triangle ABD. [2]

(b) Calculate the length of AD. [4]

(c) Calculate the length of BC. [4]

(d) Calculate the shortest distance from the point C to the line BD. [2]





Q5.The diagram shows some straight line distances between

Auckland (A), Hamilton (H), Tauranga (T) and Rotorua (R).

AT = 180 km, AH = 115 km and HT = 90 km.

(a) Calculate angle HAT.

Show that this rounds to 25.0°, correct to 3 significant figures. [4]

(b) The bearing of H from A is 150°.

Find the bearing of

(i) T from A, [1]

(ii) A from T. [1]

(c) Calculate how far T is east of A. [3]

(d) Angle THR = 30° and angle HRT = 70°.

Calculate the distance TR. [3]

Q6. (a)The diagram shows triangle FGH, with FG = 14 cm, GH = 12 cm and FH = 6 cm.

(i) Calculate the size of angle HFG. [4]

(ii) Calculate the area of triangle FGH. [2]

(b) The diagram shows triangle PQR, with RP = 12 cm, RQ = 18 cm and angle RPQ = 117°.

Calculate the size of angle RQP. [3]



**Answer Key:**

****Q1. Q2.

Q3. Q4.



Q5. Q6.