**Trigonometry** Topic Review

1. The angle of depression of an object on a level plain is observed to be 19° from the top of a 21m tower. How far is the object from the foot of the tower?

2. The angle of elevation of the top of a vertical cliff is observed to be 23° from a boat 180m from the cliff base. What is the height of the cliff?

3. A ship sails south for 50km, then 043°T until it is due east of its starting point. How far is the ship from its starting point?

4. Epping Station is 1250m north and 4175m east of James Ruse. What is the bearing of James Ruse from Epping Station?

5. Find the unknown values in each of the following triangles.

   a. 

      \[
      \begin{aligned}
      & \text{\( x \text{ cm} \)} \\
      \text{\( 91^\circ \)} \\
      \text{\( 14 \text{ cm} \)} \\
      \text{\( 22^\circ \)} \\
      \text{\( y \text{ cm} \)} \\
      \text{\( \theta^\circ \)}
      \end{aligned}
      \]

   b. 

      \[
      \begin{aligned}
      & \text{\( \alpha^\circ \)} \\
      & \text{\( 12 \text{ cm} \)} \\
      & \text{\( 7 \text{ cm} \)} \\
      & \text{\( \beta^\circ \)} \\
      & \text{\( 10 \text{ cm} \)} \\
      & \text{\( \gamma^\circ \)}
      \end{aligned}
      \]

   c. 

      \[
      \begin{aligned}
      & \text{\( 7 \text{ cm} \)} \\
      & \text{\( \delta^\circ \)} \\
      & \text{\( 70^\circ \)} \\
      & \text{\( A \text{ cm}^2 \)} \\
      & \text{\( 8 \text{ cm} \)}
      \end{aligned}
      \]