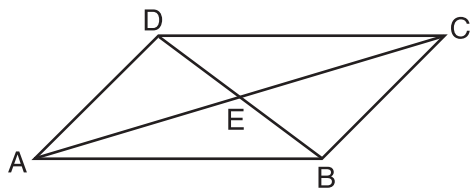
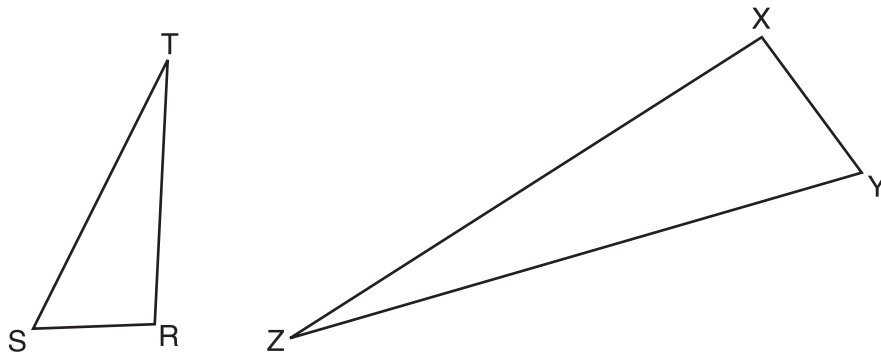


28 In parallelogram $ABCD$ shown below, diagonals \overline{AC} and \overline{BD} intersect at E .

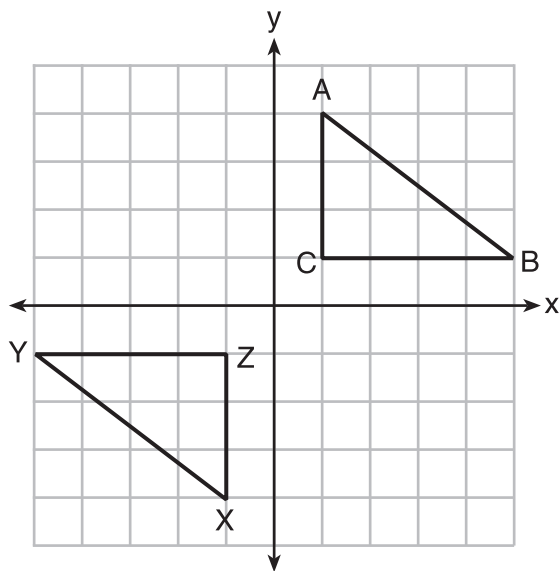


Prove: $\angle ACD \cong \angle CAB$

29 Triangles RST and XYZ are drawn below. If $RS = 6$, $ST = 14$, $XY = 9$, $YZ = 21$, and $\angle S \cong \angle Y$, is $\triangle RST$ similar to $\triangle XYZ$? Justify your answer.



30 In the diagram below, $\triangle ABC$ and $\triangle XYZ$ are graphed.



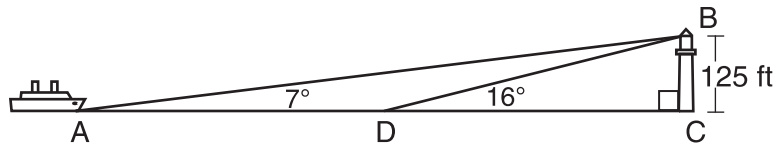
Use the properties of rigid motions to explain why $\triangle ABC \cong \triangle XYZ$.

31 The endpoints of \overline{DF} are $D(1,4)$ and $F(16,14)$. Determine and state the coordinates of point E , if $DE:EF = 2:3$.

Part III

Answer all 3 questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [12]

- 32 As shown in the diagram below, a ship is heading directly toward a lighthouse whose beacon is 125 feet above sea level. At the first sighting, point A , the angle of elevation from the ship to the light was 7° . A short time later, at point D , the angle of elevation was 16° .



To the *nearest foot*, determine and state how far the ship traveled from point A to point D .