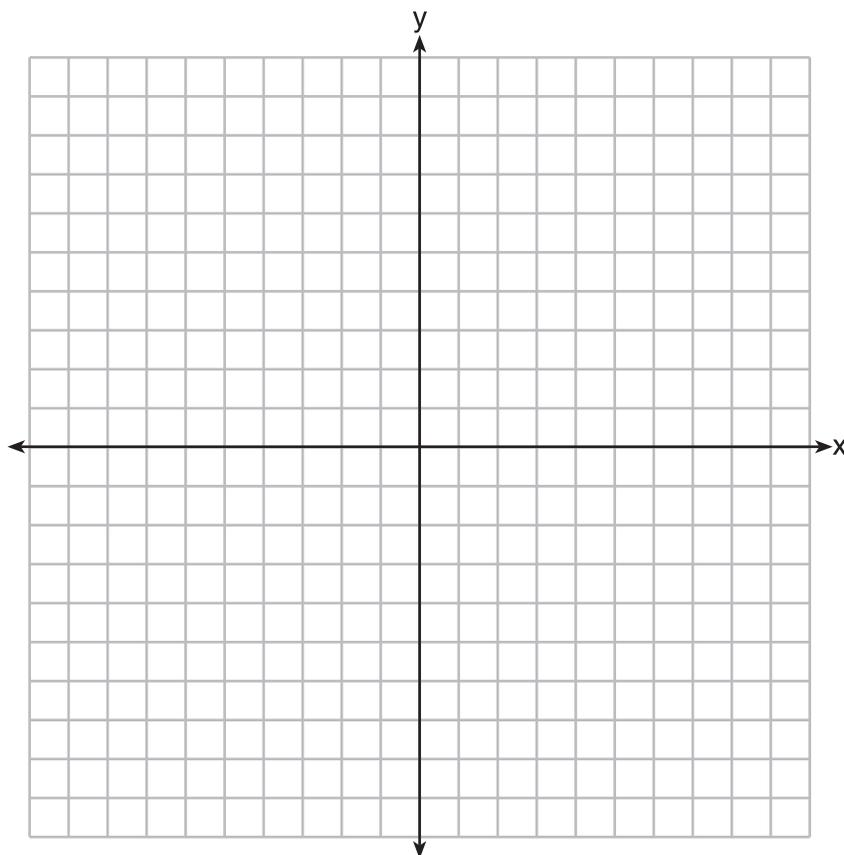


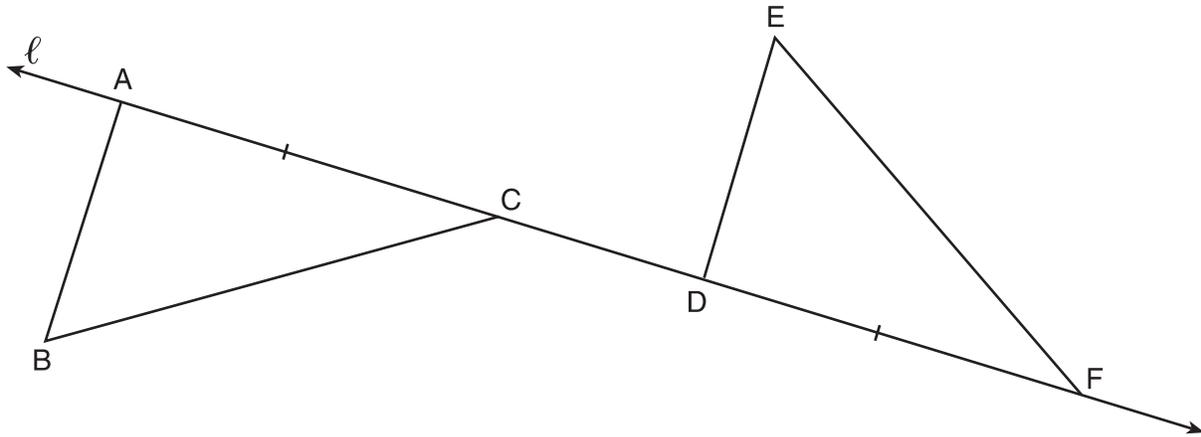
33 Triangle ABC has vertices with $A(x,3)$, $B(-3,-1)$, and $C(-1,-4)$.

Determine and state a value of x that would make triangle ABC a right triangle. Justify why $\triangle ABC$ is a right triangle.

[The use of the set of axes below is optional.]



34 In the diagram below, $\overline{AC} \cong \overline{DF}$ and points A , C , D , and F are collinear on line ℓ .



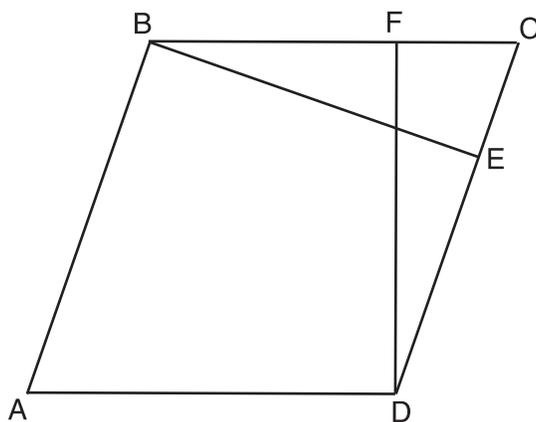
Let $\triangle D'E'F'$ be the image of $\triangle DEF$ after a translation along ℓ , such that point D is mapped onto point A . Determine and state the location of F' . Explain your answer.

Let $\triangle D''E''F''$ be the image of $\triangle D'E'F'$ after a reflection across line ℓ . Suppose that E'' is located at B . Is $\triangle DEF$ congruent to $\triangle ABC$? Explain your answer.

Part IV

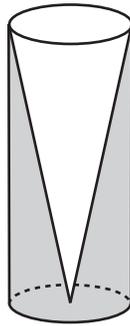
Answer the 2 questions in this part. Each correct answer will receive 6 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily 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]

35 In the diagram of parallelogram $ABCD$ below, $\overline{BE} \perp \overline{CED}$, $\overline{DF} \perp \overline{BFC}$, and $\overline{CE} \cong \overline{CF}$.



Prove $ABCD$ is a rhombus.

36 Walter wants to make 100 candles in the shape of a cone for his new candle business. The mold shown below will be used to make the candles. Each mold will have a height of 8 inches and a diameter of 3 inches. To the *nearest cubic inch*, what will be the total volume of 100 candles?



Walter goes to a hobby store to buy the wax for his candles. The wax costs \$0.10 per ounce. If the weight of the wax is 0.52 ounce per cubic inch, how much will it cost Walter to buy the wax for 100 candles?

If Walter spent a total of \$37.83 for the molds and charges \$1.95 for each candle, what is Walter's profit after selling 100 candles?