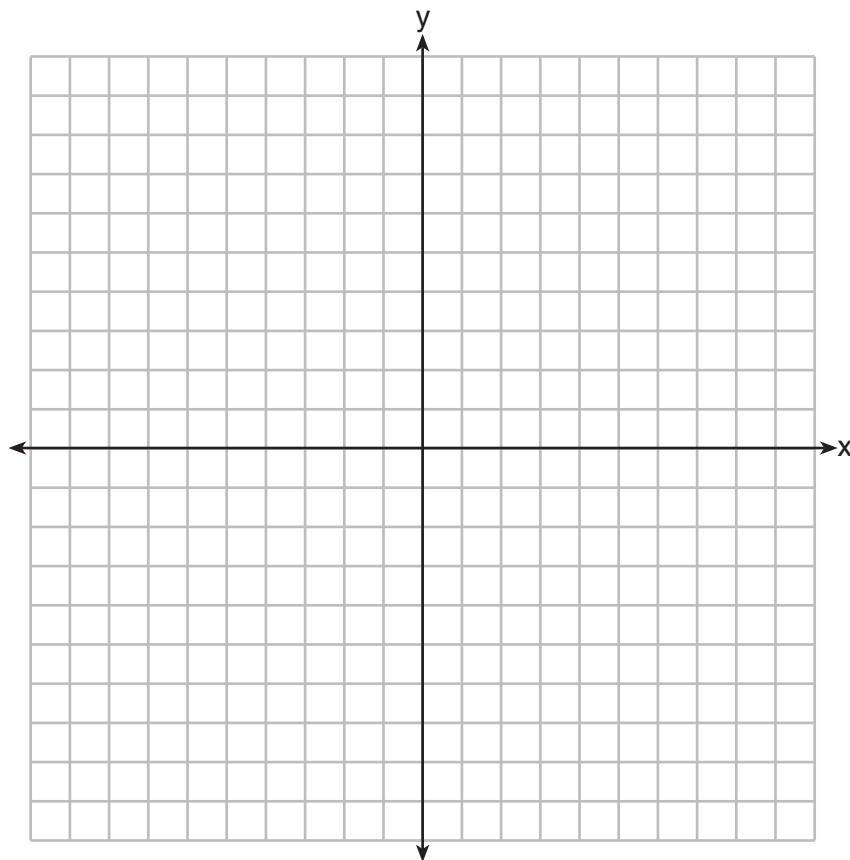


### Part III

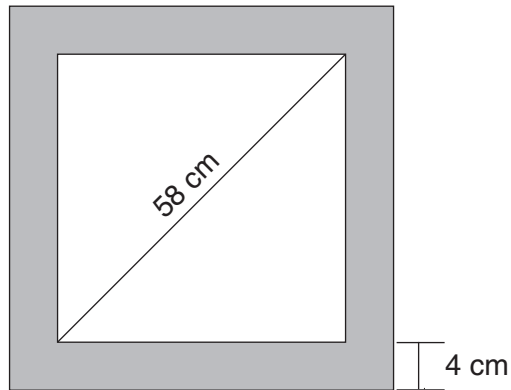
Answer all 3 questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily 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 Triangle  $PQR$  has vertices  $P(-3, -1)$ ,  $Q(-1, 7)$ , and  $R(3, 3)$ , and points  $A$  and  $B$  are midpoints of  $\overline{PQ}$  and  $\overline{RQ}$ , respectively. Use coordinate geometry to prove that  $\overline{AB}$  is parallel to  $\overline{PR}$  and is half the length of  $\overline{PR}$ .

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

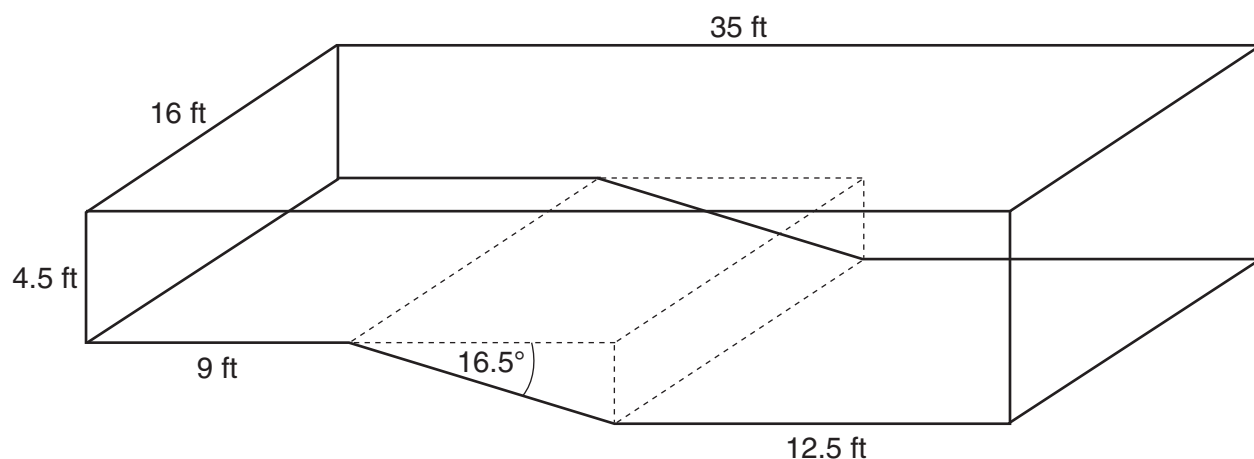


- 34 Keira has a square poster that she is framing and placing on her wall. The poster has a diagonal 58 cm long and fits exactly inside the frame. The width of the frame around the picture is 4 cm.



Determine and state the total area of the poster and frame to the *nearest tenth of a square centimeter*.

- 36** A rectangular in-ground pool is modeled by the prism below. The inside of the pool is 16 feet wide and 35 feet long. The pool has a shallow end and a deep end, with a sloped floor connecting the two ends. Without water, the shallow end is 9 feet long and 4.5 feet deep, and the deep end of the pool is 12.5 feet long.



If the sloped floor has an angle of depression of 16.5 degrees, what is the depth of the pool at the deep end, to the *nearest tenth of a foot*?

Find the volume of the inside of the pool to the *nearest cubic foot*.

**Question 36 is continued on the next page.**

**Question 36 continued**

A garden hose is used to fill the pool. Water comes out of the hose at a rate of 10.5 gallons per minute. How much time, to the *nearest hour*, will it take to fill the pool 6 inches from the top?  
[1 ft<sup>3</sup> = 7.48 gallons]