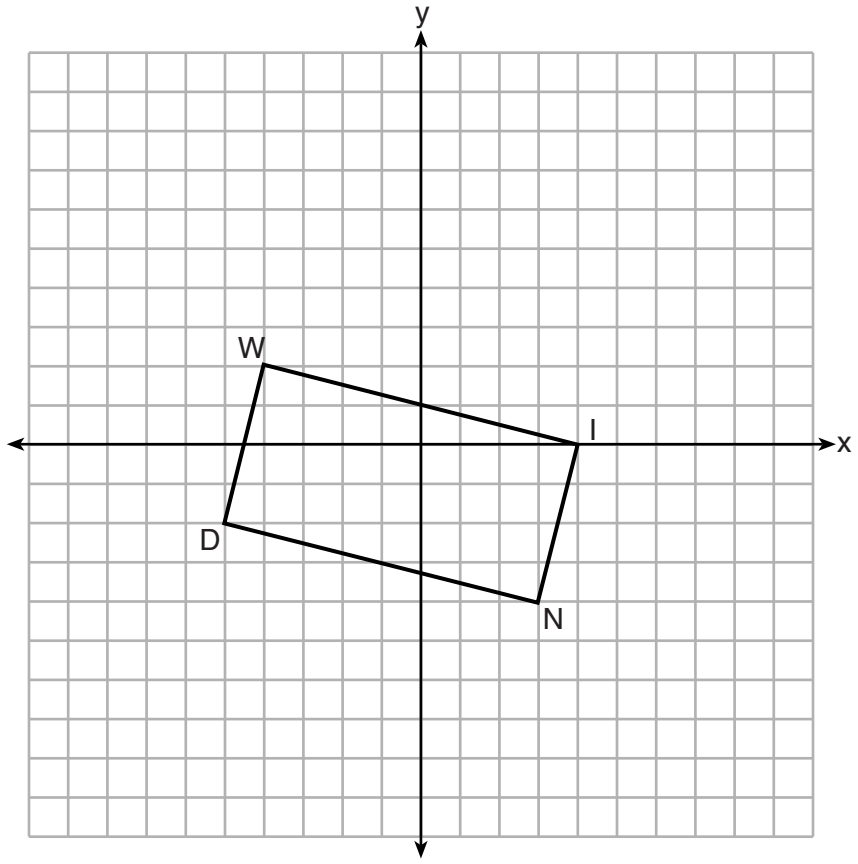
Use this space for computations.

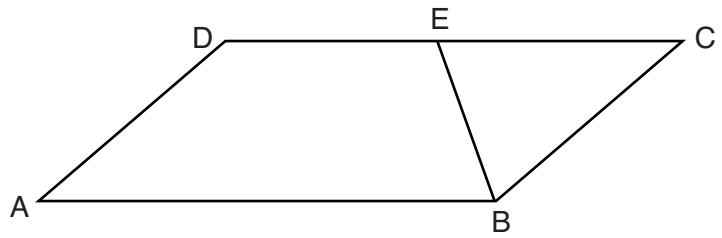
14 On the set of axes below, rectangle *WIND* has vertices with coordinates $W(-4,2)$, $I(4,0)$, $N(3,-4)$, and $D(-5,-2)$.



What is the area of rectangle *WIND*?

(1) 17
(2) 31
(3) 32
(4) 34

15 In parallelogram *ABCD* shown below, $\overline{EB}$ bisects $\angle ABC$.



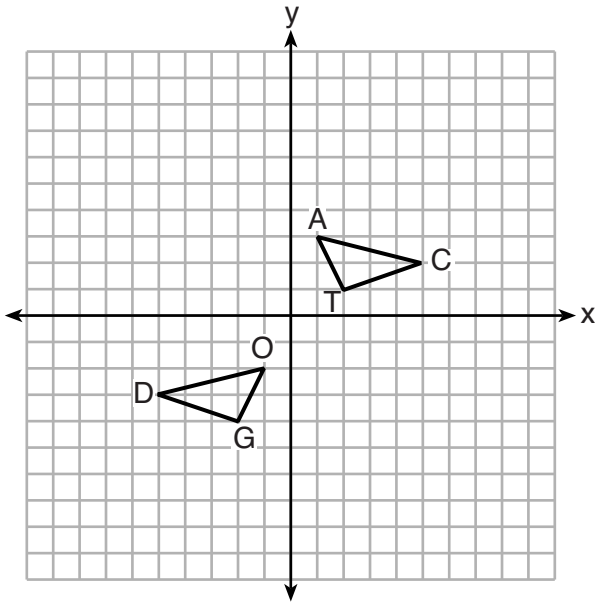
If $m\angle A = 40°$, then $m\angle BED$ is

(1) 40°
(2) 70°
(3) 110°
(4) 140°

Part II

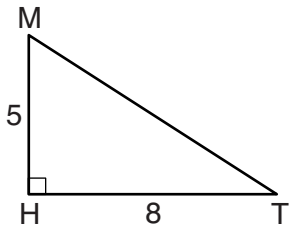
Answer all 7 questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily 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. [14]

25 On the set of axes below, $\triangle DOG \cong \triangle CAT$.



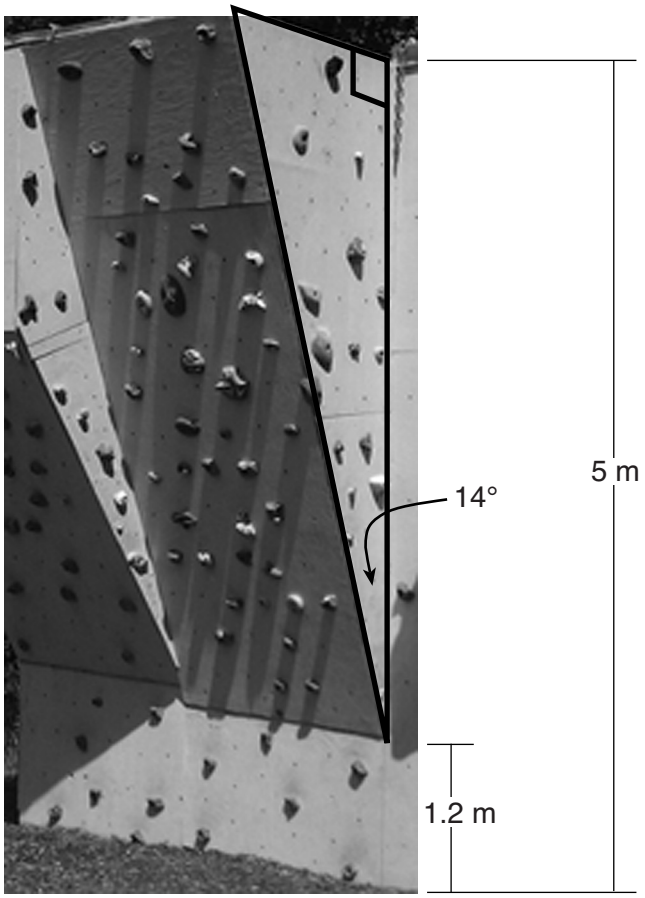
Describe a sequence of transformations that maps $\triangle DOG$ onto $\triangle CAT$.

26 In right triangle MTH shown below, $m\angle H = 90°$, $HT = 8$, and $HM = 5$.



Determine and state, to the *nearest tenth*, the volume of the three-dimensional solid formed by rotating $\triangle MTH$ continuously around $\overline{MH}$.

28 A rock-climbing wall at a local park has a right triangular section that slants toward the climber, as shown in the picture below. The height of the wall is 5 meters and the slanted section begins 1.2 meters up the wall at an angle of 14 degrees.

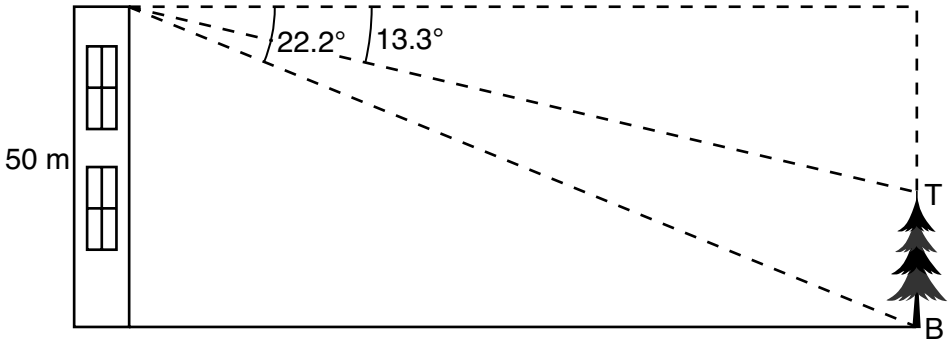


Determine and state, to the *nearest hundredth*, the number of meters in the length of the section of the wall that is slanted (hypotenuse).

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 modeled in the diagram below, a building has a height of 50 meters. The angle of depression from the top of the building to the top of the tree, T, is 13.3°. The angle of depression from the top of the building to the bottom of the tree, B, is 22.2°.



Determine and state, to the *nearest meter*, the height of the tree.

33 The coordinates of the vertices of quadrilateral *HYPE* are $H(-3,6)$, $Y(2,9)$, $P(8,-1)$, and $E(3,-4)$. Prove *HYPE* is a rectangle. [The use of the set of axes below is optional.]