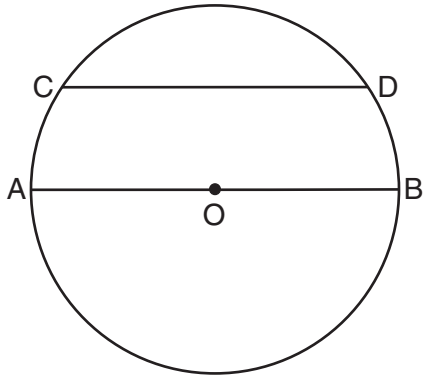
Use this space for computations.

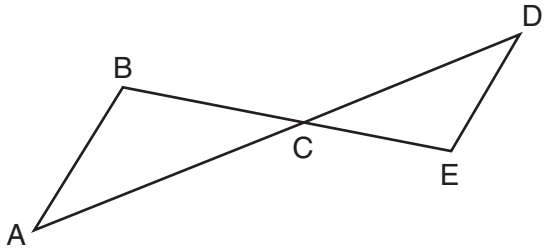
4 In the diagram below of circle O, chord $\overline{CD}$ is parallel to diameter $\overline{AOB}$ and $m\overset{\frown}{CD} = 130$.



What is $m\overset{\frown}{AC}$?

(1) 25
(2) 50
(3) 65
(4) 115

5 In the diagram below, $\overline{AD}$ intersects $\overline{BE}$ at C, and $\overline{AB} \parallel \overline{DE}$.

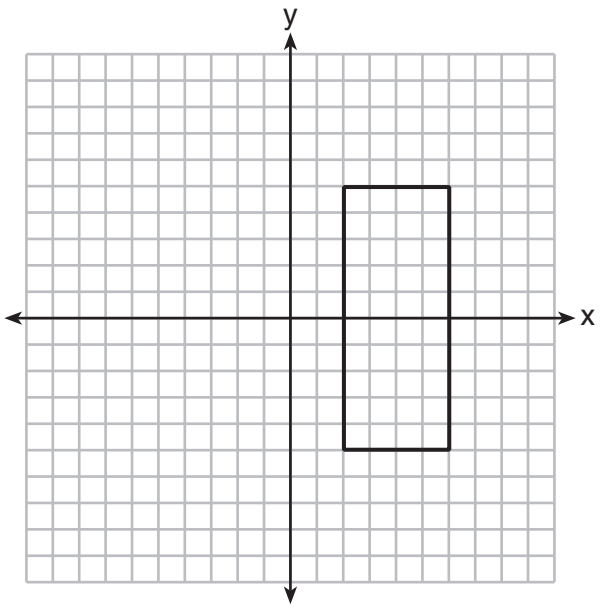


If $CD = 6.6$ cm, $DE = 3.4$ cm, $CE = 4.2$ cm, and $BC = 5.25$ cm, what is the length of $\overline{AC}$, to the *nearest hundredth of a centimeter*?

(1) 2.70
(2) 3.34
(3) 5.28
(4) 8.25

Use this space for computations.

6 As shown in the graph below, the quadrilateral is a rectangle.



Which transformation would *not* map the rectangle onto itself?

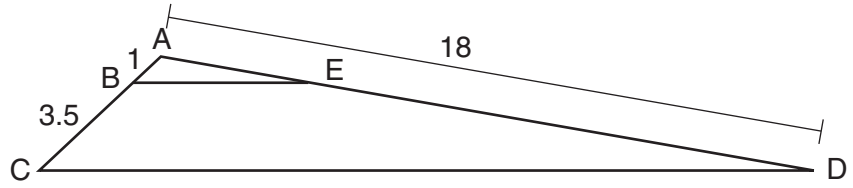
(1) a reflection over the x-axis

(2) a reflection over the line $x = 4$

(3) a rotation of 180° about the origin

(4) a rotation of 180° about the point (4,0)

7 In the diagram below, triangle ACD has points B and E on sides $\overline{AC}$ and $\overline{AD}$, respectively, such that $\overline{BE} \parallel \overline{CD}$, $AB = 1$, $BC = 3.5$, and $AD = 18$.



What is the length of $\overline{AE}$, to the *nearest tenth*?

(1) 14.0

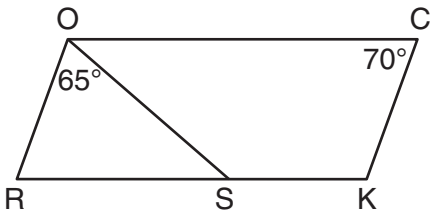
(2) 5.1

(3) 3.3

(4) 4.0

Use this space for computations.

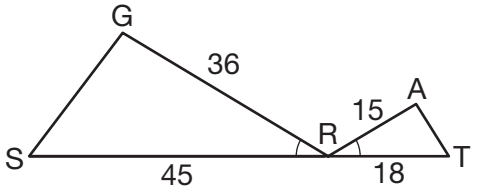
8 In the diagram below of parallelogram $ROCK$, $m\angle C$ is 70° and $m\angle ROS$ is 65°.



What is $m\angle KSO$?

(1) 45°
(2) 110°
(3) 115°
(4) 135°

9 In the diagram below, $\angle GRS \cong \angle ART$, $GR = 36$, $SR = 45$, $AR = 15$, and $RT = 18$.



Which triangle similarity statement is correct?

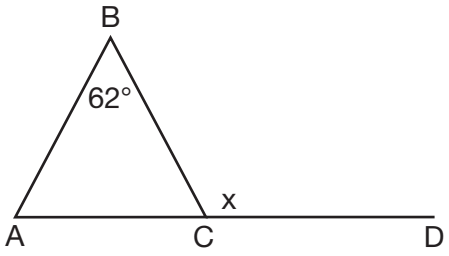
(1) $\triangle GRS \sim \triangle ART$ by AA.
(2) $\triangle GRS \sim \triangle ART$ by SAS.
(3) $\triangle GRS \sim \triangle ART$ by SSS.
(4) $\triangle GRS$ is not similar to $\triangle ART$.

10 The line represented by the equation $4y = 3x + 7$ is transformed by a dilation centered at the origin. Which linear equation could represent its image?

(1) $3x - 4y = 9$
(2) $3x + 4y = 9$
(3) $4x - 3y = 9$
(4) $4x + 3y = 9$

Use this space for computations.

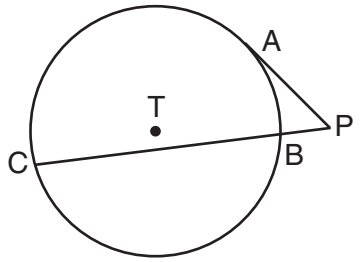
11 Given $\triangle ABC$ with $m\angle B = 62°$ and side $\overline{AC}$ extended to D, as shown below.



Which value of x makes $\overline{AB} \cong \overline{CB}$?

(1) 59°
(2) 62°
(3) 118°
(4) 121°

12 In the diagram shown below, $\overline{PA}$ is tangent to circle T at A, and secant $\overline{PBC}$ is drawn where point B is on circle T.

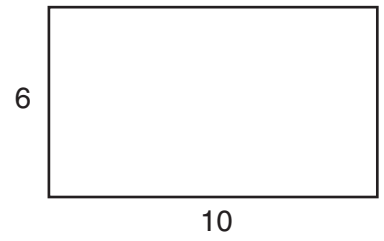


If $PB = 3$ and $BC = 15$, what is the length of $\overline{PA}$?

(1) $3\sqrt{5}$
(2) $3\sqrt{6}$
(3) 3
(4) 9

Use this space for computations.

13 A rectangle whose length and width are 10 and 6, respectively, is shown below. The rectangle is continuously rotated around a straight line to form an object whose volume is 150π.



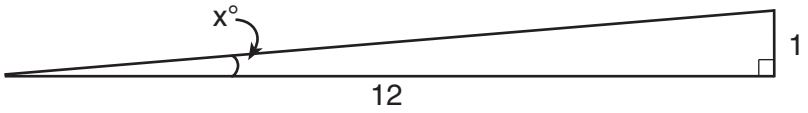
Which line could the rectangle be rotated around?

(1) a long side
(2) a short side
(3) the vertical line of symmetry
(4) the horizontal line of symmetry

14 If $ABCD$ is a parallelogram, which statement would prove that $ABCD$ is a rhombus?

(1) $\angle ABC \cong \angle CDA$
(2) $\overline{AC} \cong \overline{BD}$
(3) $\overline{AC} \perp \overline{BD}$
(4) $\overline{AB} \perp \overline{CD}$

15 To build a handicapped-access ramp, the building code states that for every 1 inch of vertical rise in height, the ramp must extend out 12 inches horizontally, as shown in the diagram below.

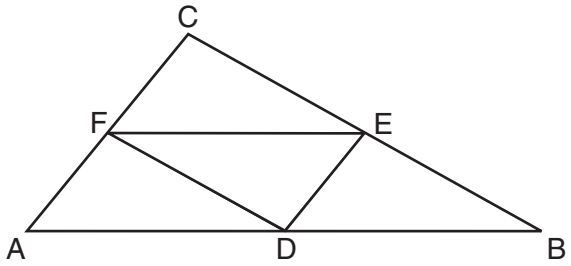


What is the angle of inclination, x, of this ramp, to the *nearest hundredth of a degree*?

(1) 4.76
(2) 4.78
(3) 85.22
(4) 85.24

Use this space for computations.

16 In the diagram below of $\triangle ABC$, D, E, and F are the midpoints of $\overline{AB}$, $\overline{BC}$, and $\overline{CA}$, respectively.



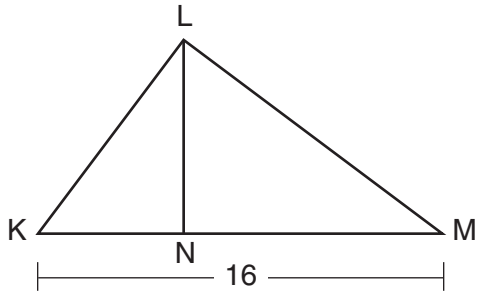
What is the ratio of the area of $\triangle CFE$ to the area of $\triangle CAB$?

(1) 1:1
(2) 1:2
(3) 1:3
(4) 1:4

17 The coordinates of the endpoints of $\overline{AB}$ are $A(-8,-2)$ and $B(16,6)$. Point P is on $\overline{AB}$. What are the coordinates of point P, such that $AP{:}PB$ is 3:5?

(1) (1,1)
(2) (7,3)
(3) (9.6,3.6)
(4) (6.4,2.8)

18 Kirstie is testing values that would make triangle KLM a right triangle when $\overline{LN}$ is an altitude, and $KM = 16$, as shown below.



Which lengths would make triangle KLM a right triangle?

(1) $LM = 13$ and $KN = 6$
(2) $LM = 12$ and $NM = 9$
(3) $KL = 11$ and $KN = 7$
(4) $LN = 8$ and $NM = 10$