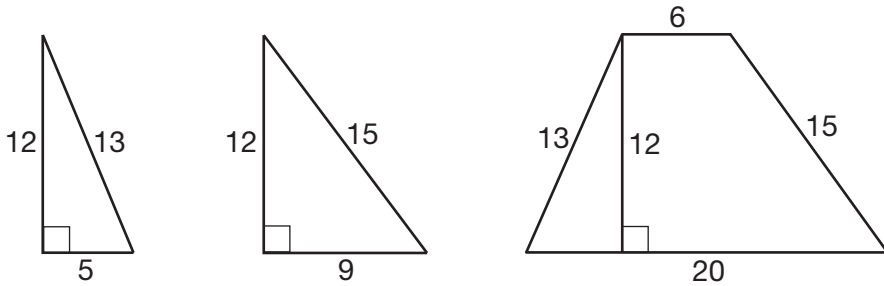18 Francisco needs the three pieces of glass shown below to complete a stained glass window. The shapes, two triangles and a trapezoid, are measured in inches.

Glass can be purchased in rectangular sheets that are 12 inches wide. What is the minimum length of a sheet of glass, in inches, that Francisco must purchase in order to have enough to complete the window?

(1) 20   (3) 29

(2) 25   (4) 34

19 In the diagram of quadrilateral $NAVY$ below, m$\angle YNA = 30°$, m$\angle YAN = 38°$, m$\angle AVY = 94°$, and m$\angle VAY = 46°$.
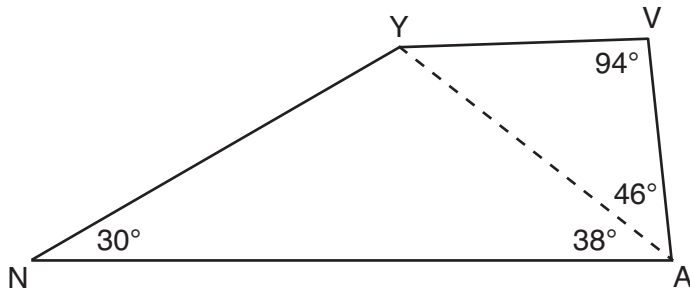
Which segment has the shortest length?

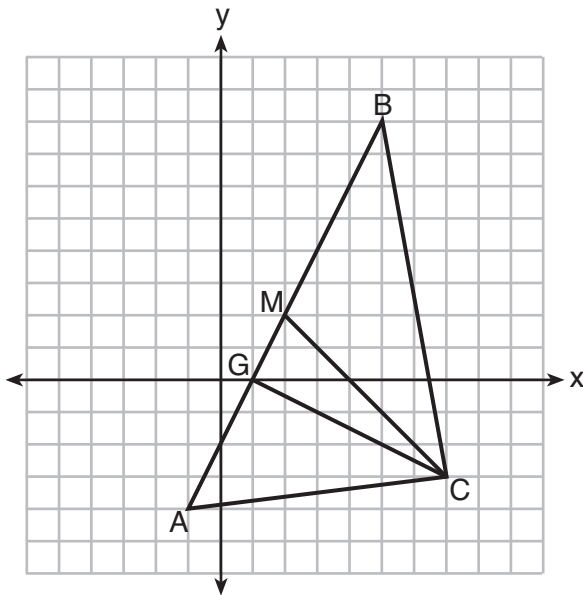(1) $\overline{AY}$ (3) $\overline{VA}$

(2) $\overline{NY}$ (4) $\overline{VY}$

20 What is an equation of a circle whose center is $(1,4)$ and diameter is 10?

(1) $x^2 - 2x + y^2 - 8y = 8$ (3) $x^2 - 2x + y^2 - 8y = 83$

(2) $x^2 + 2x + y^2 + 8y = 8$ (4) $x^2 + 2x + y^2 + 8y = 83$

21 On the set of axes below, $\triangle ABC$, altitude $\overline{CG}$, and median $\overline{CM}$ are drawn.

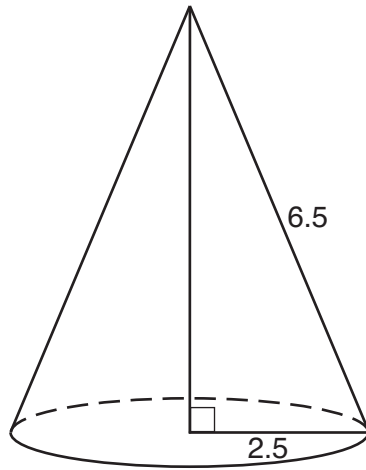Which expression represents the area of $\triangle ABC$?

(1) $\dfrac{(BC)(AC)}{2}$ (3) $\dfrac{(CM)(AB)}{2}$

(2) $\dfrac{(GC)(BC)}{2}$ (4) $\dfrac{(GC)(AB)}{2}$

22 In right triangle ABC, $m\angle C = 90°$ and $AC \neq BC$. Which trigonometric ratio is equivalent to $\sin B$?

(1) $\cos A$ (3) $\tan A$

(2) $\cos B$ (4) $\tan B$

23 As shown in the diagram below, the radius of a cone is 2.5 cm and its slant height is 6.5 cm.

How many cubic centimeters are in the volume of the cone?

(1) 12.5π   (3) 30.0π

(2) 13.5π   (4) 37.5π

24 What is an equation of the image of the line $y = \frac{3}{2}x - 4$ after a dilation of a scale factor of $\frac{3}{4}$ centered at the origin?

(1) $y = \frac{9}{8}x - 4$ (3) $y = \frac{3}{2}x - 4$

(2) $y = \frac{9}{8}x - 3$ (4) $y = \frac{3}{2}x - 3$

GO RIGHT ON TO THE NEXT PAGE ➡

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]
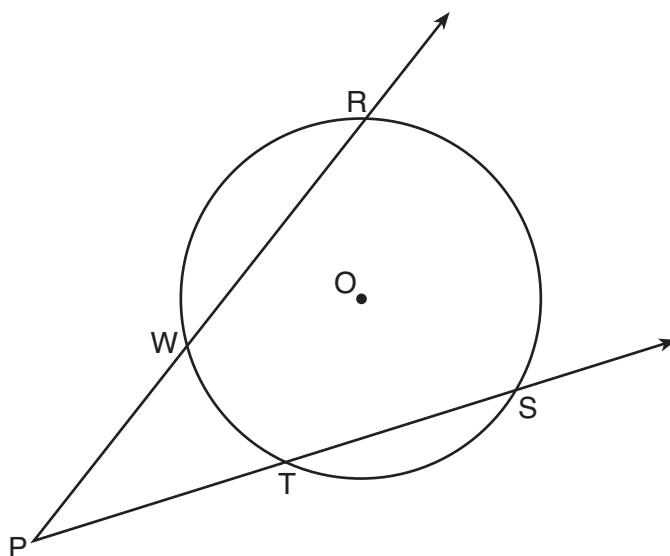
25 Write an equation of the line that is parallel to the line whose equation is $3y + 7 = 2x$ and passes through the point $(2,6)$.

26 Parallelogram *ABCD* is adjacent to rhombus *DEFG*, as shown below, and $\overline{FC}$ intersects $\overline{AGD}$ at *H*.
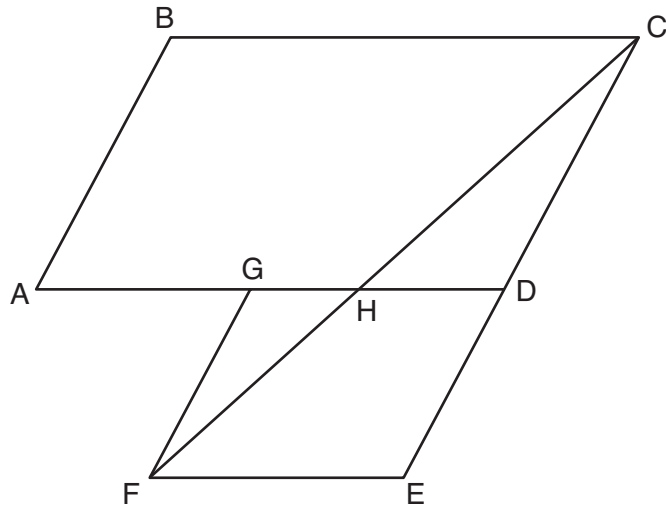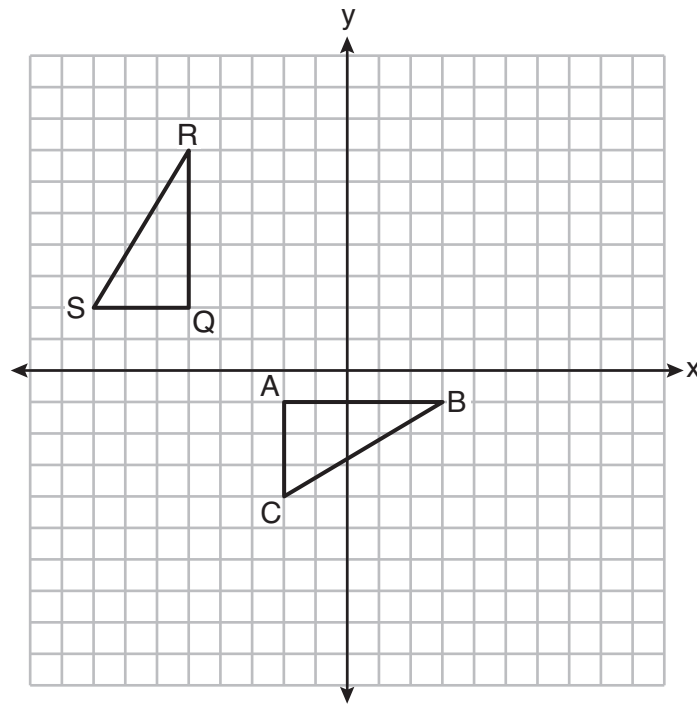

If m∠*B* = 118° and m∠*AHC* = 138°, determine and state m∠*GFH*.

27 As shown in the diagram below, secants $\overrightarrow{PWR}$ and $\overrightarrow{PTS}$ are drawn to circle O from external point P.

If m$\angle RPS = 35°$ and m$\overset{\frown}{RS} = 121°$, determine and state m$\overset{\frown}{WT}$.

28 On the set of axes below, $\triangle ABC$ is graphed with coordinates $A(-2,-1)$, $B(3,-1)$, and $C(-2,-4)$. Triangle QRS, the image of $\triangle ABC$, is graphed with coordinates $Q(-5,2)$, $R(-5,7)$, and $S(-8,2)$.

Describe a sequence of transformations that would map $\triangle ABC$ onto $\triangle QRS$.

29 Given points A, B, and C, use a compass and straightedge to construct point D so that $ABCD$ is a parallelogram.

[Leave all construction marks.]

· C

· A   · B