

Name \_\_\_\_\_  
Mr. Schlansky

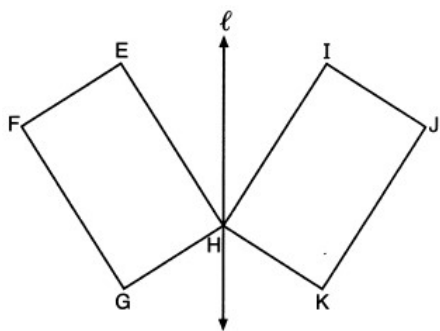
Date \_\_\_\_\_  
Geometry

## CCG Schlansky's Guide to 65 Review!

1. The vertices of  $\triangle JKL$  have coordinates  $J(5,1)$ ,  $K(-2,-3)$ , and  $L(-4,1)$ . Under which transformation is the image  $\triangle J'K'L'$  *not* congruent to  $\triangle JKL$ ?

- 1) a translation of two units to the right and two units down
- 2) a counterclockwise rotation of 180 degrees around the origin
- 3) a reflection over the  $x$ -axis
- 4) a dilation with a scale factor of 2 and centered at the origin

2. In the diagram below, parallelogram  $EFGH$  is mapped onto parallelogram  $IJKH$  after a reflection over line  $\ell$ . Use the properties of rigid motions to explain why parallelogram  $EFGH$  is congruent to parallelogram  $IJKH$ .

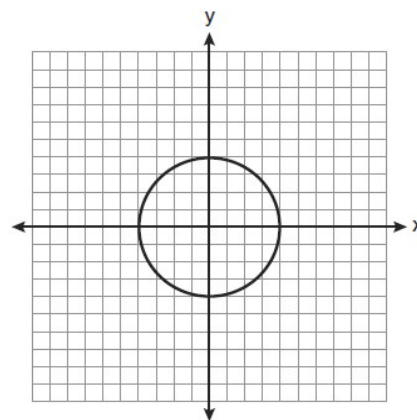


3. Which rotation about its center will carry a regular decagon onto itself?

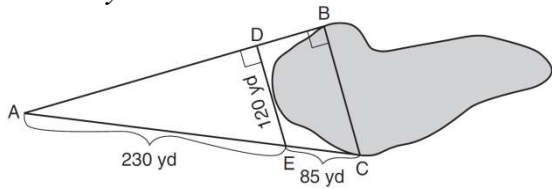
- 1)  $54^\circ$
- 2)  $162^\circ$
- 3)  $198^\circ$
- 4)  $252^\circ$

4. In the diagram below, which transformation does *not* map the circle onto itself?

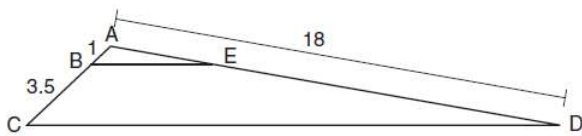
- 1) Rotation of 80 centered at the origin
- 2) Reflection over the line  $y = x$
- 3) Rotation of 180 centered at  $(4,0)$
- 4) Reflection over the line  $x = 0$



5. To find the distance across a pond from point  $B$  to point  $C$ , a surveyor drew the diagram below. The measurements he made are indicated on his diagram. Use the surveyor's information to determine and state the distance from point  $B$  to point  $C$ , to the nearest yard.

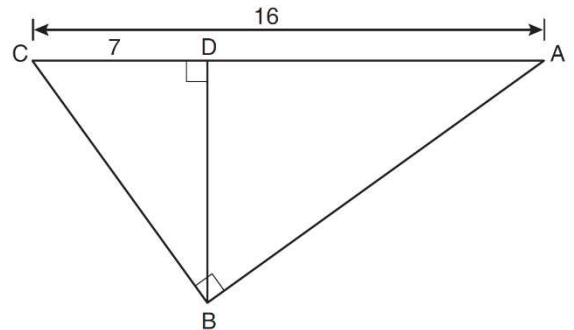


6. In the diagram below, triangle  $ACD$  has points  $B$  and  $E$  on sides  $\overline{AC}$  and  $\overline{AD}$ , respectively, such that  $\overline{BE} \parallel \overline{CD}$ ,  $AB = 1$ ,  $BC = 3.5$ , and  $AD = 18$ .



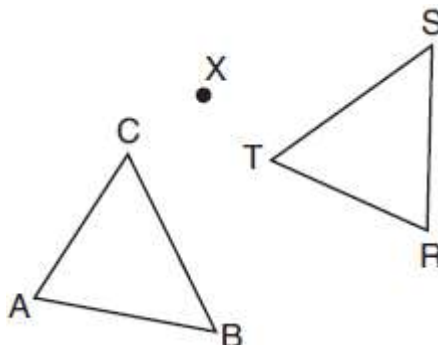
What is the length of  $\overline{AE}$ , to the nearest tenth?

7. In the diagram below of right triangle  $ABC$ , altitude  $\overline{BD}$  is drawn to hypotenuse  $\overline{AC}$ ,  $AC = 16$ , and  $CD = 7$ .



What is the length of  $\overline{BD}$  to the nearest tenth?

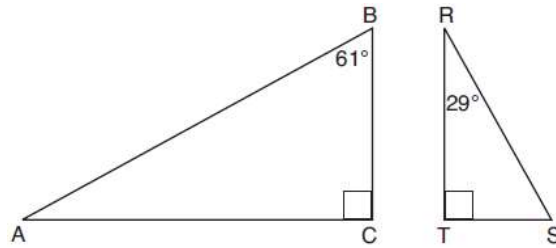
8. After a counterclockwise rotation about point  $X$ , scalene triangle  $ABC$  maps onto  $\triangle RST$ , as shown in the diagram below.



Which statement must be true?

- 1)  $\angle A \cong \angle R$
- 2)  $\angle A \cong \angle S$
- 3)  $\overline{CB} \cong \overline{TR}$
- 4)  $\overline{CA} \cong \overline{TS}$

9. Given right triangle  $ABC$  with a right angle at  $C$ ,  $m\angle B = 61^\circ$ . Given right triangle  $RST$  with a right angle at  $T$ ,  $m\angle R = 29^\circ$ .

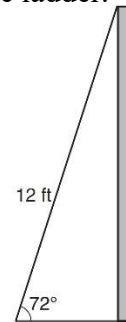


Which proportion in relation to  $\triangle ABC$  and  $\triangle RST$  is *not* correct?

- |                                    |                                    |
|------------------------------------|------------------------------------|
| 1) $\frac{AB}{RS} = \frac{RT}{AC}$ | 3) $\frac{BC}{ST} = \frac{AC}{RT}$ |
| 2) $\frac{BC}{ST} = \frac{AB}{RS}$ | 4) $\frac{AB}{AC} = \frac{RS}{RT}$ |

10. As shown in the diagram below, a ladder 12 feet long leans against a wall and makes an angle of  $72^\circ$  with the ground.

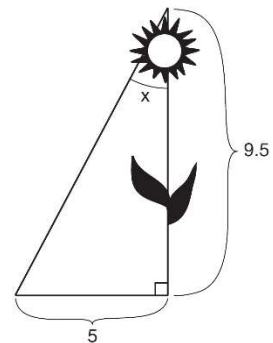
Find, to the *nearest tenth of a foot*, the distance from the wall to the base of the ladder.



11. The diagram below shows the path a bird flies from the top of a 9.5-foot-tall sunflower to a point on the ground 5 feet from the base of the sunflower.

To the *nearest tenth of a degree*, what is the measure of angle  $x$ ?

- 1) 27.8
- 2) 31.8
- 3) 58.2
- 4) 62.2



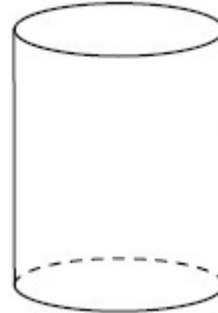
12. Right triangle  $TMR$  is a scalene triangle with the right angle at  $M$ . Which equation is true?

- |                      |                      |
|----------------------|----------------------|
| 1) $\sin M = \cos T$ | 3) $\sin T = \cos R$ |
| 2) $\sin R = \cos R$ | 4) $\sin T = \cos M$ |

13. In a right triangle,  $\sin(40 - x)^\circ = \cos(3x)^\circ$ . What is the value of  $x$ ?

- 1) 10
- 2) 15
- 3) 20
- 4) 25

14. A plane intersects a cylinder perpendicular to its bases.

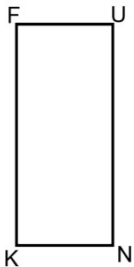


This cross section can be described as a

- 1) rectangle
- 2) parabola
- 3) triangle
- 4) circle

15. Find the volume of a cone with a height of 12 in and a diameter of 8 in rounded to the nearest hundredth.

16. In the rectangle below,  $\overline{UN} = 8\text{ in}$  and  $\overline{KN} = 3\text{ in}$ . Find the volume of the three dimensional object created by rotating rectangle  $FUNK$  continuously about side  $\overline{FK}$  in terms of  $\pi$ .



17. Find the center and radius of the circle whose equation is  $x^2 + y^2 + 6x - 2y - 4 = 22$ .

18. The line  $y = 2x - 4$  is dilated by a scale factor of  $\frac{3}{2}$  and centered at the origin. Which equation represents the image of the line after the dilation?

- 1)  $y = 2x - 4$
- 2)  $y = 2x - 6$
- 3)  $y = 3x - 4$
- 4)  $y = 3x - 6$

19. 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  $(2, -1)$ ?

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

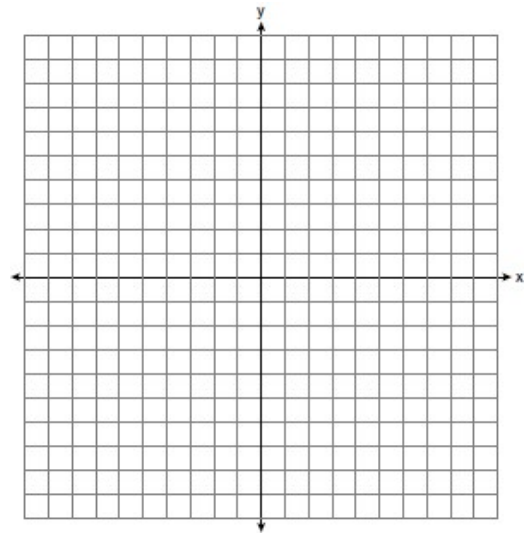
20. The equation of a line is  $y = \frac{2}{3}x + 5$ . What is an equation of the line that is perpendicular to the given line and that passes through the point  $(4, 2)$ ?

- 1)  $y = \frac{2}{3}x - \frac{2}{3}$
- 2)  $y = \frac{3}{2}x - 4$
- 3)  $y = -\frac{3}{2}x + 7$
- 4)  $y = -\frac{3}{2}x + 8$

21. What is an equation of the line that passes through the point  $(6, 8)$  and is perpendicular to a line with equation  $y = \frac{3}{2}x + 5$ ?

- 1)  $y - 8 = \frac{3}{2}(x - 6)$
- 2)  $y - 8 = -\frac{2}{3}(x - 6)$
- 3)  $y + 8 = \frac{3}{2}(x + 6)$
- 4)  $y + 8 = -\frac{2}{3}(x + 6)$

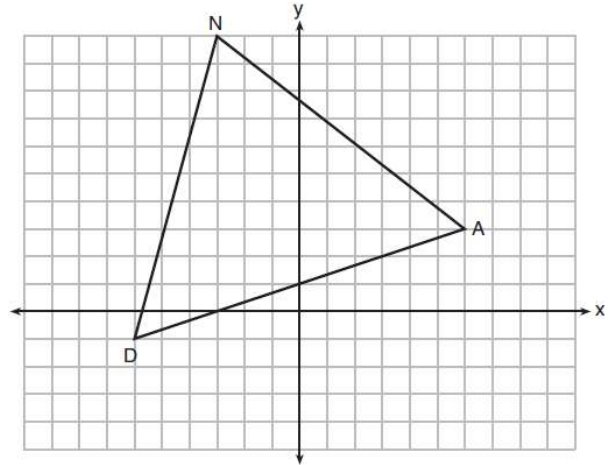
22. Directed line segment  $SB$  has endpoints whose coordinates are  $S(-6,3)$  and  $B(9,-2)$ . Determine the coordinates of point  $J$  that divides the segment in the ratio 2 to 3.



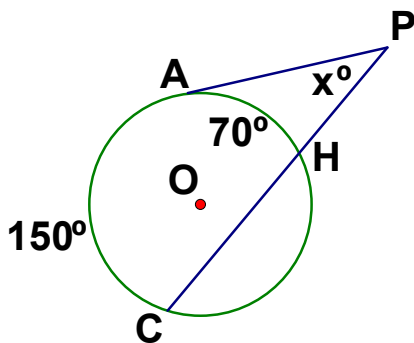
23. Triangle  $DAN$  is graphed on the set of axes below. The vertices of  $\triangle DAN$  have coordinates  $D(-6,-1)$ ,  $A(6,3)$ , and  $N(-3,10)$ .

What is the area of  $\triangle DAN$ ?

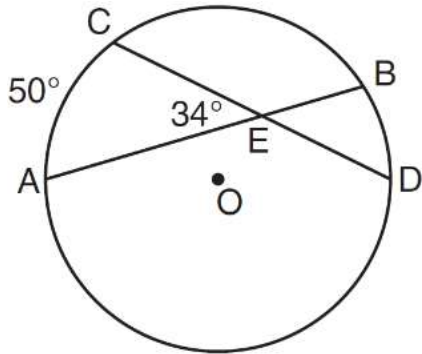
- 1) 60
- 2) 120
- 3)  $20\sqrt{13}$
- 4)  $40\sqrt{13}$



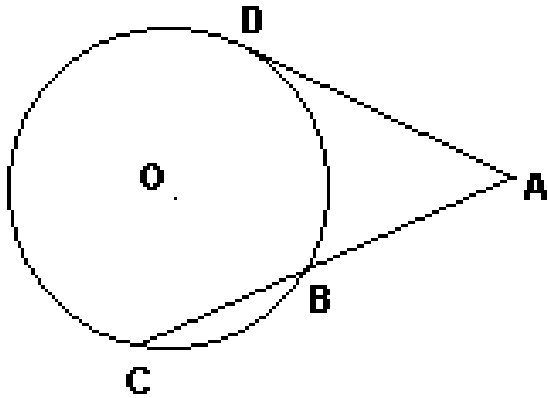
24. In Circle  $O$ ,  $m\widehat{AC} = 150$  and  $m\widehat{AH} = 70$ . Find  $m\angle P$



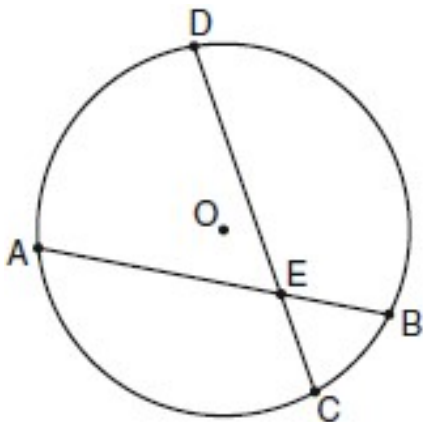
25. In the diagram below of circle  $O$ , chords  $\overline{AB}$  and  $\overline{CD}$  intersect at  $E$ . If  $m\angle AEC = 34$  and  $m\widehat{AC} = 50$ , what is  $m\widehat{DB}$ ?



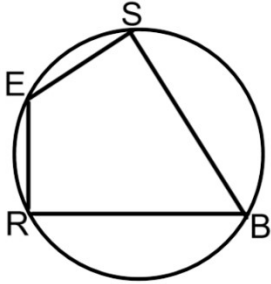
26. In the diagram,  $\overline{AD}$  is tangent to circle  $O$  at  $D$ , and  $\overline{CBA}$  is a secant. If  $AD = 6$  and  $AC = 9$ , what is  $AB$ ?



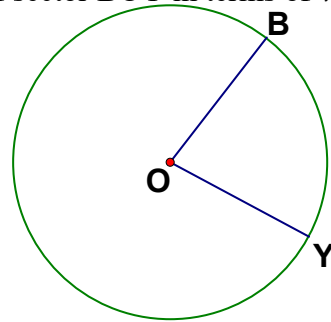
27. In the diagram of circle  $O$  below, chord  $\overline{AB}$  intersects chord  $\overline{CD}$  at  $E$ ,  $DE = 2x + 8$ ,  $EC = 3$ ,  $AE = 4x - 3$ , and  $EB = 4$ . What is the value of  $x$ ?



28. In the diagram below, quadrilateral  $SBRE$  is inscribed in the circle. If  $m\angle BRE = 91^\circ$  and  $m\angle SBR = 40^\circ$ , find  $m\angle BSE$  and  $m\angle SER$



29. In circle O, if  $\angle BOY = 80^\circ$  and  $\overline{BO} = 8 \text{ cm}$ , find the area of sector BOY in terms of  $\pi$ .



30. Quadrilateral  $FRDY$  has vertices  $F(-2, -8)$ ,  $R(7,-1)$ ,  $D(10,10)$  and  $Y(1,3)$ . Using coordinate geometry, prove that quadrilateral  $FRDY$  is a rhombus but *not* a square.

