

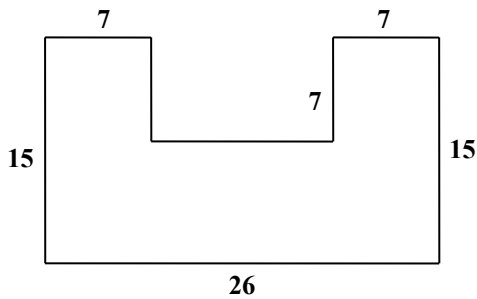
Geometry Semester 2 Practice Exam

Note: Diagrams and figures on this assessment are not necessarily drawn to scale.

1. A tire has a radius of 15 inches. What is the approximate circumference, in inches, of the tire?

A. 47 in.
B. 94 in.
C. 188 in.
D. 707 in.

2. In the figure below, adjacent sides of the polygon are perpendicular.



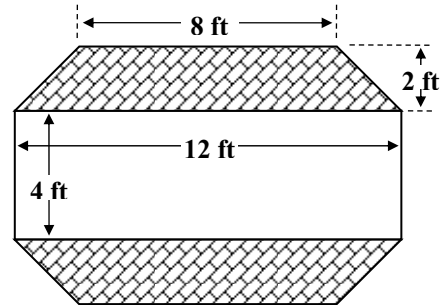
What is the perimeter of the figure?

A. 77
B. 82
C. 89
D. 96

3. The length of a rectangular patio is 32 feet. Its area is 800 square feet. What is the perimeter of the patio in feet?

A. 25 ft
B. 57 ft
C. 114 ft
D. 368 ft

4. A rectangular garden is to be edged with decorative brick as shown by the shaded region in the figure. The flower garden is 4 feet by 12 feet. The trapezoids are 2 feet high.



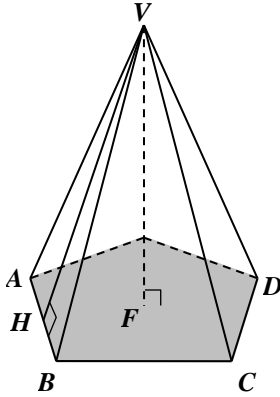
What is the area of the decorative edge (the shaded region) in square feet?

A. 20 ft^2
B. 26 ft^2
C. 40 ft^2
D. 48 ft^2

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5. Given the figure below:

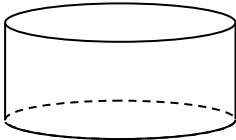


What is the best description of \overline{VF} ?

- A. altitude
- B. base edge
- C. lateral edge
- D. slant height

6. The surface area of a cylinder is $2 \times (\text{Area of Base}) + (\text{Circumference of the Base}) \times \text{height}$.

In the cylinder below, the radius is 4 centimeters and surface area is 72π square centimeters.



What is the height of the cylinder?

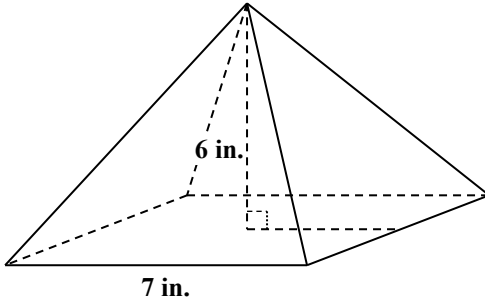
- A. 4 cm
- B. 5 cm
- C. 6 cm
- D. 9 cm

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7. A regular pyramid has height of 6 inches and the measure of the base edge is 7 inches.

$$\text{Volume} = \frac{1}{3} \times (\text{Area of Base}) \times \text{height}$$

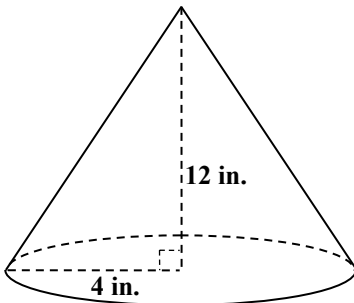


What is the volume of the pyramid?

- A. 49 in.³
 - B. 98 in.³
 - C. 147 in.³
 - D. 294 in.³
-

8. What is the volume of the cone below?

$$\text{Volume} = \frac{1}{3} \times (\text{Area of Base}) \times \text{height}$$



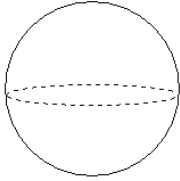
- A. 192π in.³
- B. 96π in.³
- C. 64π in.³
- D. 48π in.³

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9. A group of students wants to make a fabric toy ball to donate to the canine rescue. The diameter of the ball is 3 inches.

Surface area = $4 \times$ (Area of a Great Circle).

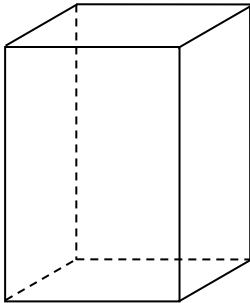


Approximately how many square inches of fabric will they need for each ball?

- A. 29 in.²
 - B. 57 in.²
 - C. 76 in.²
 - D. 114 in.²
-

10. A cereal box is 18 inches by 3 inches by 12 inches. After breakfast, the box is one-third full.

Volume = (Area of Base) \times height



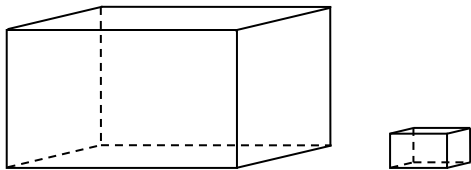
How many cubic inches of cereal are left inside?

- A. 36 in.³
- B. 72 in.³
- C. 216 in.³
- D. 648 in.³

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11. Two similar rectangular prisms have a scale factor of 4:1. The smaller prism has a volume of 6 cubic centimeters.



What is the volume of the larger prism in cubic centimeters?

- A. 24 cm^3
- B. 96 cm^3
- C. 384 cm^3
- D. 1536 cm^3

12. A pizza parlor has two different sizes of circular pizzas. The smaller one has a diameter of 12 inches and the larger one has a diameter of 20 inches.

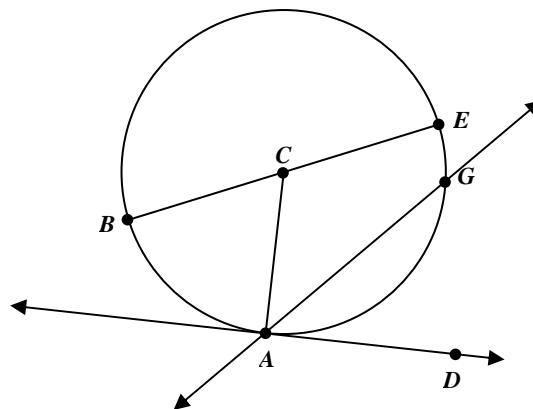
What is the ratio of their areas?

- A. 9:25
- B. 3:5
- C. $2\sqrt{3} : 2\sqrt{5}$
- D. $\sqrt{6} : \sqrt{10}$

13. Which accurately describes a tangent?

- A. A segment whose endpoints are on the circle.
- B. A line that intersects a circle in two points and passes through the center of the circle.
- C. A segment having an endpoint on the circle and an endpoint at the center of the circle.
- D. A line that intersects a circle at exactly one point.

14. Use the figure below.



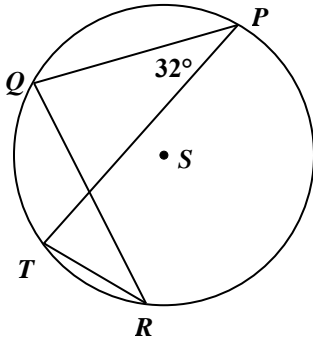
Which of the following represent a secant?

- A. \overleftrightarrow{AG}
- B. \overline{BE}
- C. \overline{CA}
- D. \overleftrightarrow{DA}

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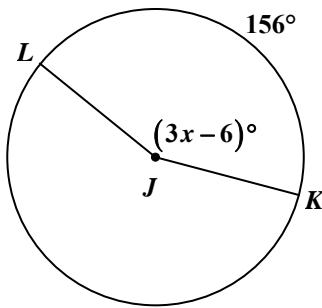
15. In circle S below,



The $m\angle QPT = 32^\circ$, what is the measure of $\angle QRT$?

- A. 16°
- B. 32°
- C. 64°
- D. 128°

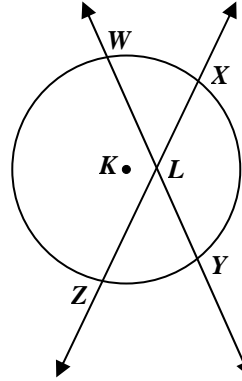
16. In circle J below,



What is the value of x ?

- A. 78
- B. 54
- C. 50
- D. 27

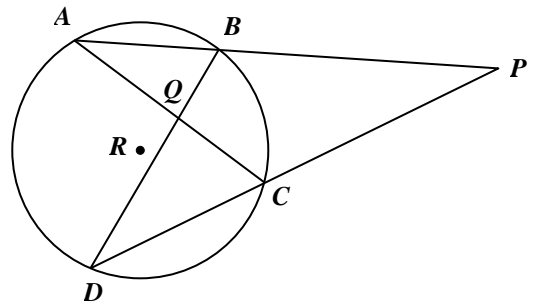
17. In $\square K$, $m\angle XY = (7x - 9)^\circ$,
 $m\angle WZ = 3(2x + 15)^\circ$, and
 $m\angle XLY = 148^\circ$.



What is the value of x ?

- A. 20
- B. 54
- C. 131
- D. 350

18. In the figure below, $m\angle BC = 75^\circ$ and
 $m\angle AD = 135^\circ$,



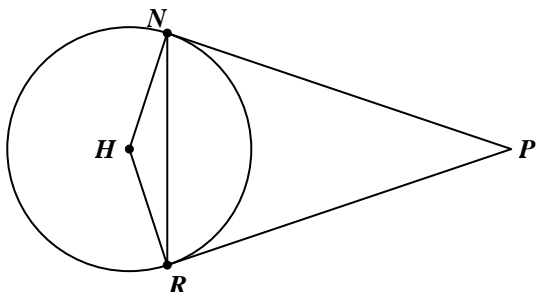
What is $m\angle P$?

- A. 15°
- B. 30°
- C. 45°
- D. 60°

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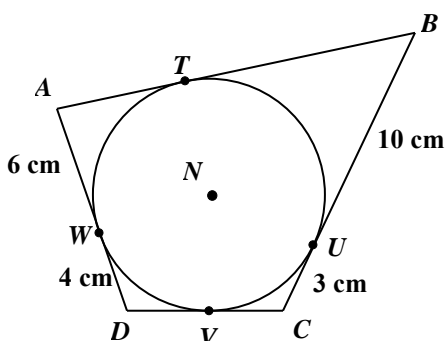
Note: Diagrams and figures on this assessment are not necessarily drawn to scale.

19. Two tangents are drawn from point P to circle H .



What conclusion is guaranteed by this diagram?

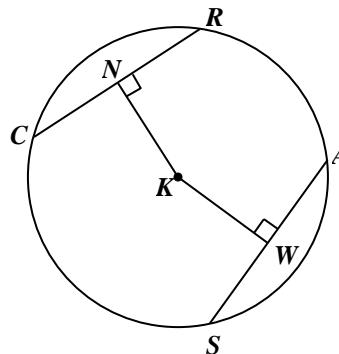
- A. $\frac{1}{2}m\widehat{NR} = m\angle NPR$
- B. $\triangle HNR$ is a right triangle.
- C. $HNPR$ is a rhombus.
- D. $HNPR$ is a kite.
20. All of the segments shown in the figure below are tangents to $\odot N$.



Given the measures in the figure above, what is the perimeter of quadrilateral $ABCD$?

- A. 23 cm
- B. 40 cm
- C. 46 cm
- D. 52 cm

21. In $\square K$, $NK = 3x + 4$, $KW = 5x - 8$, $SA = 5x - 4$, and $\overline{KN} \cong \overline{KW}$.



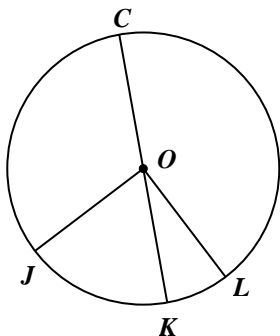
What is CN ?

- A. 6
- B. 13
- C. 22
- D. 26

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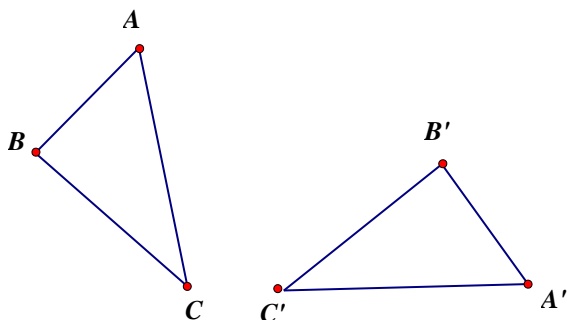
Note: Diagrams and figures on this assessment are not necessarily drawn to scale.

22. \overline{CK} is the diameter of $\square O$,
 $m\angle JOC = (19x)^\circ$, and
 $m\angle JOK = (9(x+2) - 6)^\circ$.



What is the value of x ?

- A. $\frac{4}{5}$
 B. $\frac{5}{6}$
 C. 4
 D. 6
23. Determine the transformation that has mapped $\triangle ABC$ to $\triangle A'B'C'$.

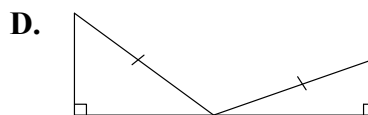
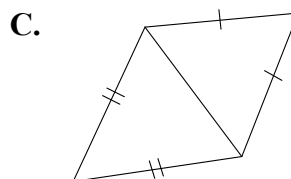
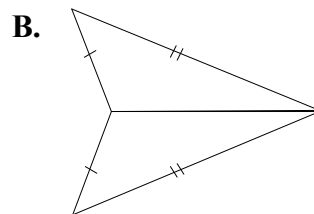
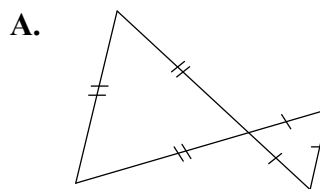


- A. dilation
 B. reflection
 C. rotation
 D. translation

24. How many lines of symmetry does a square have?

- A. 0
 B. 1
 C. 2
 D. 4

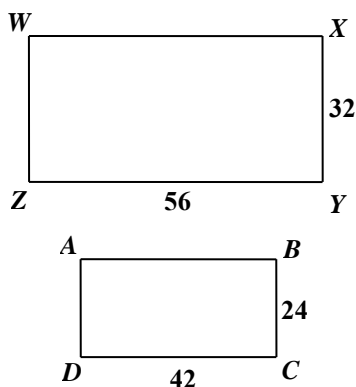
25. Which figure contains two similar triangles that are not congruent?



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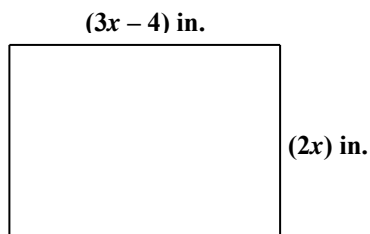
Note: Diagrams and figures on this assessment are not necessarily drawn to scale.

26. The following figures are similar.



What is the scale factor of $WXYZ$ to $ABCD$?

- A. 1 to 2
B. 3 to 1
C. 3 to 2
D. 4 to 3
27. Two plasma screen TVs are similar rectangles. Their scale factor is 8:5. The perimeter of the smaller TV is 70 inches. The lengths of the sides of the larger TV are represented by the variable expressions shown in the diagram below.



What is the value of x ?

- A. 8
B. 12
C. 16
D. 24

28. The measures of the angles of a triangle have the ratio 4:6:7. What type of triangle is it?

- A. acute
B. isosceles
C. obtuse
D. right

29. The perimeter of a right triangle is 90 feet. The ratio of the legs is 5:12. What is the length of the longest leg of the triangle?

- A. 12 ft
B. 32 ft
C. 36 ft
D. 90 ft

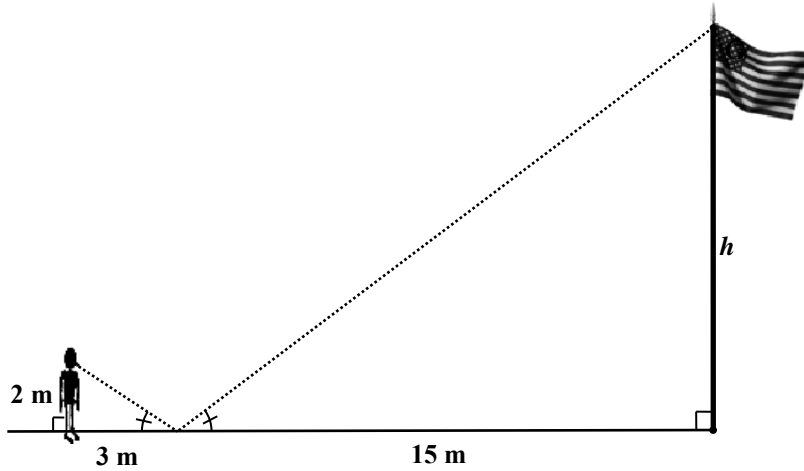
30. Pat measures the length of the shadow of a tree to be 54 feet long. At the same time he measures his own shadow to be 12 feet long and his height to be 5 feet. How tall is the tree in feet?

- A. $27\frac{1}{2}$ feet
B. 25 feet
C. $22\frac{1}{2}$ feet
D. 20 feet

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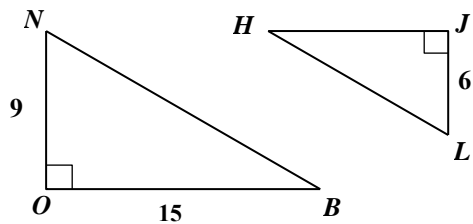
31. Kris places a mirror on the ground. She stands so that she can see the reflection of the top of a flagpole in the mirror.



What is the height h of the flagpole in meters?

- A. 10 m
- B. 12 m
- C. 18 m
- D. 20 m

32. Given the two triangles pictured below.



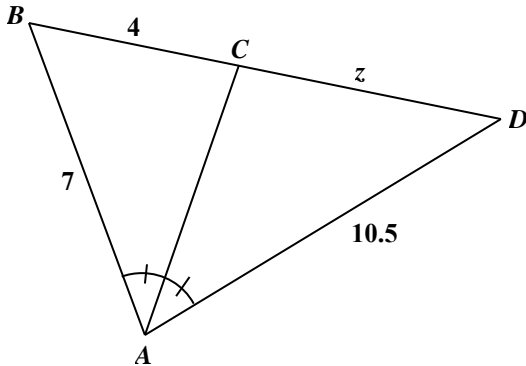
What measure for HJ would make $\triangle NOB \sim \triangle LJH$?

- A. $24\frac{1}{2}$
- B. $13\frac{1}{2}$
- C. 10
- D. 9

Geometry Semester 2 Practice Exam

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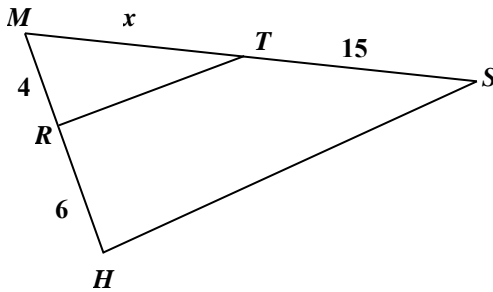
33. In the triangle below, $\angle BAC \cong \angle CAD$.



What is the value of z ?

- A. 6
- B. 12
- C. 13.5
- D. 21.5

34. In the triangle below, $\overline{RT} \parallel \overline{HS}$.



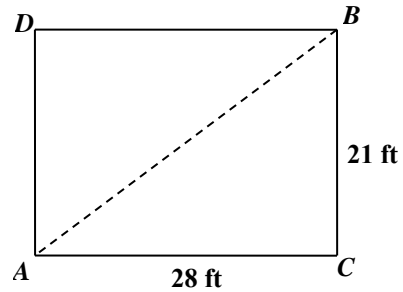
What is the value of x ?

- A. 9
- B. 10
- C. $12\frac{1}{2}$
- D. $22\frac{1}{2}$

35. What is the geometric mean of 16 and 36?

- A. 9
- B. 10
- C. 24
- D. 26

36. Nan stands at the corner of the rectangular driveway shown below.



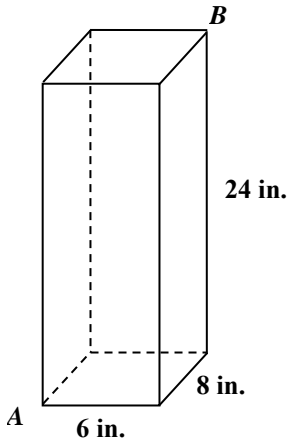
How far must Nan walk diagonally across the driveway (A to B)?

- A. 7 ft
- B. 14 ft
- C. 35 ft
- D. 49 ft

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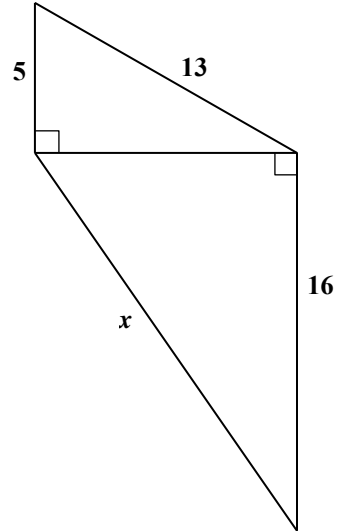
37. A box is shown below.



What is AB ?

- A. 26 in.
- B. 38 in.
- C. $2\sqrt{153}$ in.
- D. $8\sqrt{10}$ in.

38. Use the dimensions given in the diagram below.



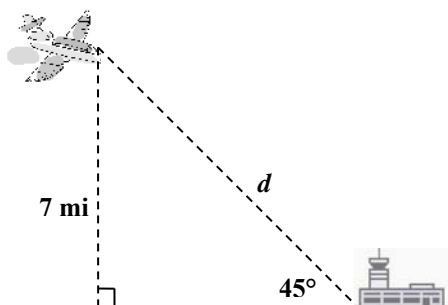
What is the value of x ?

- A. 12
 - B. 20
 - C. 22
 - D. 30
39. The three sides of a triangle are $\sqrt{3}$ centimeters, $\sqrt{5}$ centimeters, and $\sqrt{7}$ centimeters. What is the best description for this triangle?
- A. acute triangle
 - B. equiangular triangle
 - C. obtuse triangle
 - D. right triangle

Geometry Semester 2 Practice Exam

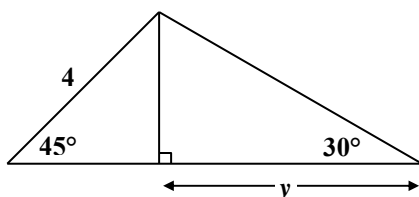
Note: Diagrams and figures on this assessment are not necessarily drawn to scale.

40. A jet is flying 7 miles above the ground. The pilot spots an airport as shown below.



What is the distance d from the plane to the airport?

- A. $7\sqrt{2}$ mi
 B. $7\sqrt{3}$ mi
 C. 7 mi
 D. 14 mi
41. Use the dimensions given in the diagram below.



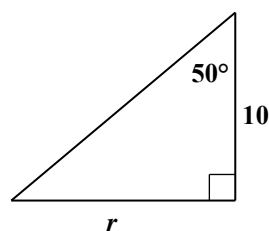
What is the value of y ?

- A. $4\sqrt{3}$
 B. $2\sqrt{3}$
 C. $4\sqrt{6}$
 D. $2\sqrt{6}$

42. In rectangle $ABCD$, $BD = 12$ and $m\angle ABD = 30^\circ$. What is the length of the longer side of the rectangle?

- A. 6
 B. 12
 C. $6\sqrt{2}$
 D. $6\sqrt{3}$

43. Use the table and the dimensions given in the diagram below.



| θ | $\sin \theta$ | $\cos \theta$ | $\tan \theta$ |
|------------|---------------|---------------|---------------|
| 20° | .3420 | .9397 | .3640 |
| 30° | .5000 | .8660 | .5774 |
| 40° | .6428 | .7660 | .8391 |
| 50° | .7660 | .6428 | 1.1918 |

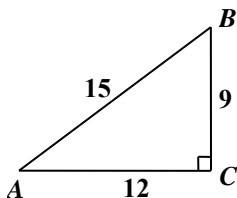
What is the value of r ?

- A. 11.918
 B. 8.391
 C. 7.660
 D. 6.428

Geometry Semester 2 Practice Exam

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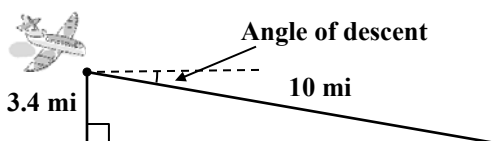
44. Use the dimensions given in the right triangle below.



What is the cosine of $\angle A$?

- A. $\frac{9}{12}$
- B. $\frac{9}{15}$
- C. $\frac{12}{9}$
- D. $\frac{12}{15}$

45. Use the table and the dimensions given in the diagram below.

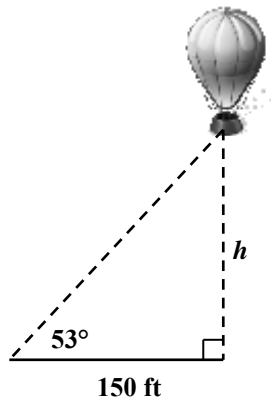


| θ | $\sin \theta$ | $\cos \theta$ | $\tan \theta$ |
|------------|---------------|---------------|---------------|
| 20° | .3420 | .9397 | .3640 |
| 30° | .5000 | .8660 | .5774 |
| 40° | .6428 | .7660 | .8391 |
| 50° | .7660 | .6428 | 1.1918 |

What is the approximate angle of descent?

- A. 50°
- B. 40°
- C. 30°
- D. 20°

46. Use the dimensions given in the diagram below.



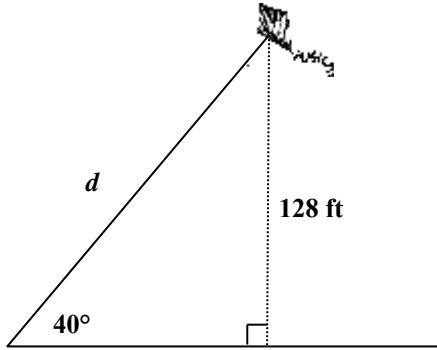
Which equation would be used to find the distance h from the hot air balloon to the ground?

- A. $h = 150 \tan 53^\circ$
- B. $h = 150 \sin 53^\circ$
- C. $h = \frac{150}{\tan 53^\circ}$
- D. $h = \frac{150}{\sin 53^\circ}$

Geometry Semester 2 Practice Exam

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47. Use the table and the dimensions given in the diagram below.

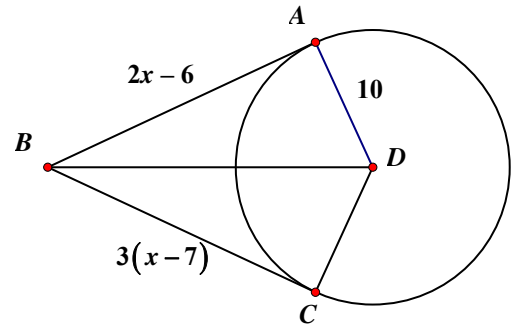


| θ | $\sin \theta$ | $\cos \theta$ | $\tan \theta$ |
|------------|---------------|---------------|---------------|
| 20° | .3420 | .9397 | .3640 |
| 30° | .5000 | .8660 | .5774 |
| 40° | .6428 | .7660 | .8391 |
| 50° | .7660 | .6428 | 1.1918 |

What is the approximate length d of the kite string?

- A. 256 ft
- B. 200 ft
- C. 168 ft
- D. 100 ft

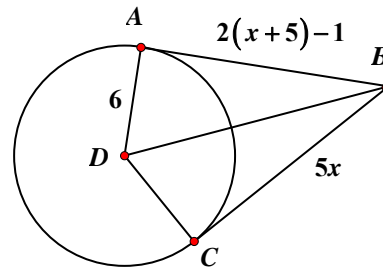
48. In circle D below, \overline{AB} is tangent to $\square D$ at A , and \overline{CB} is tangent to $\square D$ at C .



What is the length of \overline{BD} ?

- A. 14
- B. 15
- C. 24
- D. 26

49. In the figure below, \overline{AB} is tangent to $\square D$ at A and \overline{BC} is tangent to $\square D$ at C .



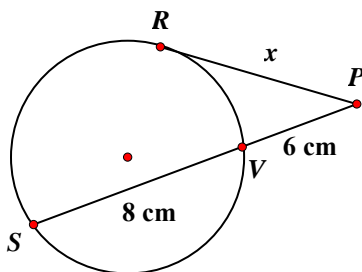
What is the value of x ?

- A. 2
- B. 3
- C. 4
- D. 5

Geometry Semester 2 Practice Exam

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50. In the figure below, \overline{RP} is tangent to the circle at R and \overline{SP} is a secant.



What is the value of x ?

- A. 48 cm
- B. 84 cm
- C. $4\sqrt{3}$ cm
- D. $2\sqrt{21}$ cm

**Geometry Semester 2 Practice Exam
Free Response**

1. Given $\triangle ABC$ with right angle at C and altitude \overline{CD} , draw the picture and explain why $\triangle ABC \sim \triangle CBD$.

Geometry Semester 2 Practice Exam Free Response

2. Find the length of the altitude of an isosceles triangle with vertex angle 120° and base length of 30 centimeters. Give answer in simplified radical form.

-
3. Find the area of a regular hexagon with an apothem of 9 centimeters. Give answer in simplified radical form.

