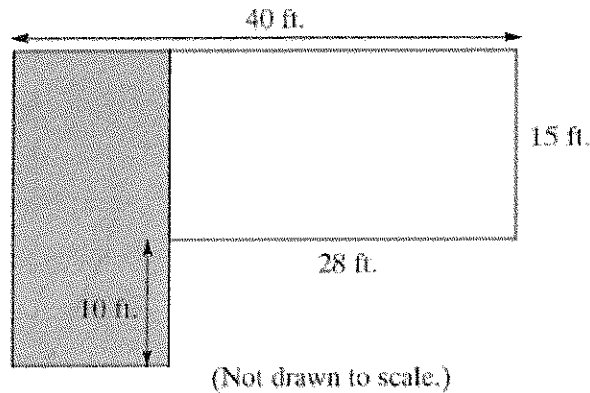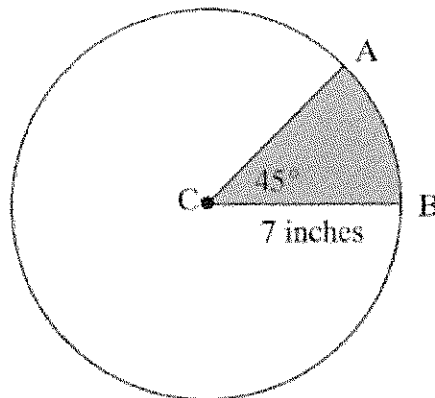MA.912.G.2.5

36. Shawn has a greenhouse in the shape shown in the figure below. He keeps new plants in the room represented by the shaded area. What is the perimeter of the room that is shaded?

40 ft.

15 ft.

28 ft.

10 ft.

(Not drawn to scale.)
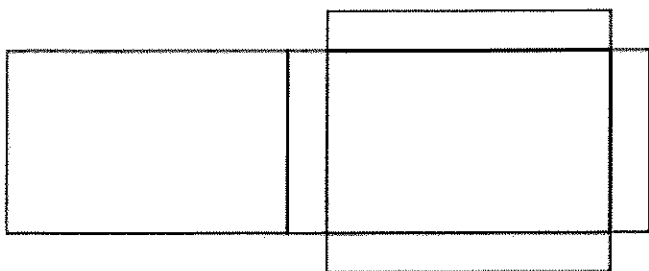
A. 74 ft.
B. 86 ft.
C. 93 ft.
D. 130 ft.

MA.912.G.6.5

37. The measure of $\angle ACB$ is $45°$. The length $\overline{BC}$ is 7 inches. What is the area of sector ACB rounded to the nearest tenth?

$45°$

7 inches

(Not drawn to scale.)

A. $19.23\ in^2$
B. $45.0\ in^2$
C. $153.9\ in^2$
D. $315.0\ in^2$

MA.912.G.7.1
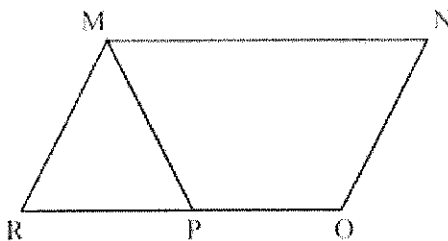
38. Which 3-dimensional shape can be formed from the net below?

A. Cube
B. Pyramid
C. Prism
D. Cylinder

MA.912.G.3.4

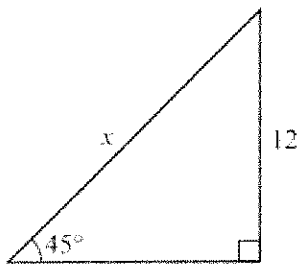39. Figure $MNOP$ is an isosceles trapezoid, and figure $MNOR$ is a parallelogram.

If $m\angle MPR = 62$ degrees, what is $m\angle RMP$?

A. 56°
B. 62°
C. 118°
D. 136°

MA.912.G.5.4
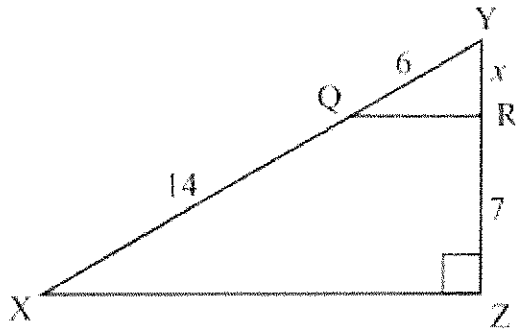
40. What is the value of x for the triangle below?

A. $\sqrt{2}$
B. $12\sqrt{2}$
C. $12\sqrt{3}$
D. 24

MA.912.G.2.3

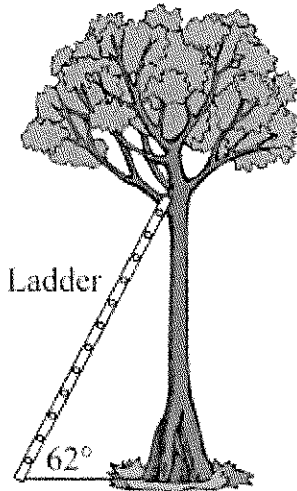41. For $\triangle XYZ$, $\overline{QR} \parallel \overline{XZ}$.

What is the length of $\overline{RY}$?

A. 3
B. 12
C. 13
D. 16

MA.912.T.2.1
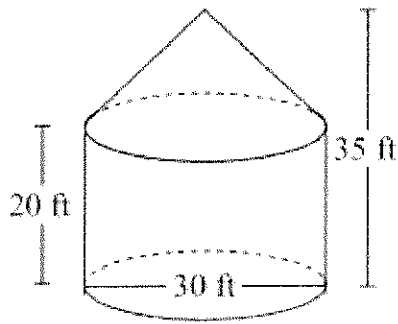
42. A cat is stuck in a tree. A firefighter's 15-foot ladder is leaning against the tree. The ladder and the ground form a 62° angle. How high above the ground does the ladder touch the tree?

A. 7.04 ft.
B. 13.24 ft.
C. 16.99 ft.
D. 28.21 ft.

MA.912.G.7.5

43. The grain bin below is made up of a cylinder with a cone on top.

To the nearest cubic foot, how much grain will this bin hold? Use $\pi = 3.14$.

A. 5,625 *cubic feet*
B. 17,663 *cubic feet*
C. 32,987 *cubic feet*
D. 70,650 *cubic feet*

MA.912.G.3.4

44. Hannah cut a quadrilateral from a piece of cardboard with the diagonals having the following characteristics.

- congruent
- perpendicular
- bisect each other

Which type of quadrilateral must Hannah have cut out?

A. parallelogram
B. rectangle
C. rhombus
D. square

MA.912.D.6.2

45. What is the contrapositive of the statement below?
If a triangle is isosceles, then it has two congruent sides.

A. If a triangle does not have two congruent sides, then it is not isosceles.
B. If a triangle is isosceles, then it does not have two congruent sides.
C. If a triangle has two congruent sides, then it is isosceles.
D. If a triangle is not isosceles, then it does not have two congruent sides.

MA.912.T.2.1

46. The lot of a building supply store is in the shape of a trapezoid as shown below. The broken line represents a fence used to divide the lot into two parts. What is the length to the nearest whole foot of the fence that divides the lot?

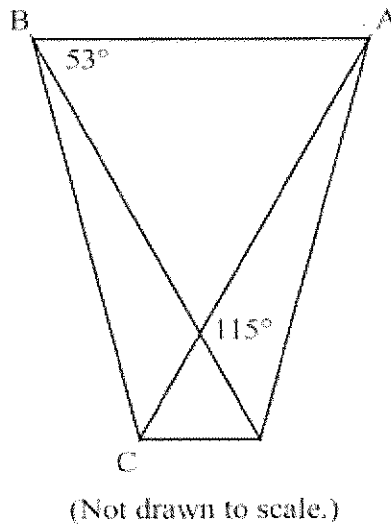**Building Supply Store Lot**

(Not drawn to scale.)
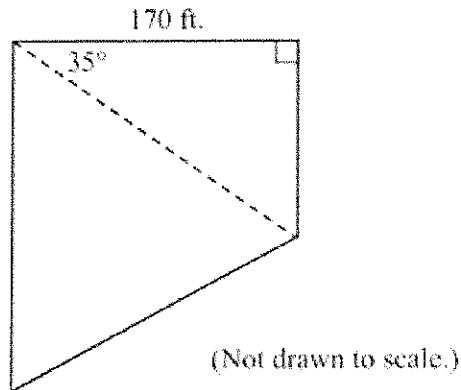
A. 139 *ft.*

B. 208 *ft.*

C. 243 *ft.*

D. 296 *ft.*

MA.912.G.3.4

47. Using the figure below, what is the measurement of $\angle BAC$?

(Not drawn to scale.)

A. 37°

B. 53°

C. 62°

D. 65°

MA.912.G.6.5

48. An insulated foam sleeve is made to fit over water pipe. The distance from the center of the water pipe to the edge of the sleeve is 6 *inches*. The hole in the center has a radius of 3 *inches*. What is the area of the face of the foam sleeve? Use $\pi = 3.14$.
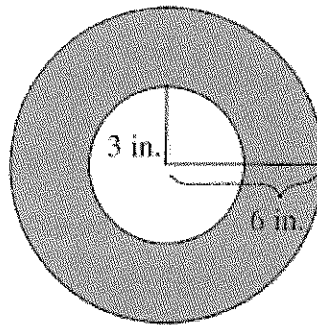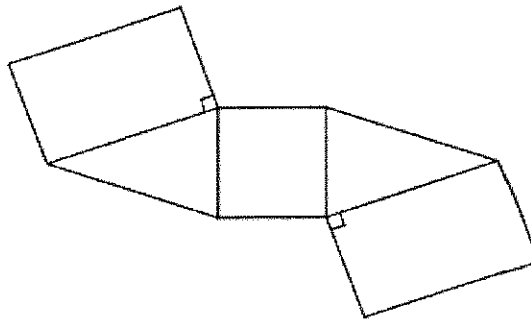

(Not drawn to scale.)

A. $9.42 \ in^2$

B. $18.84 \ in^2$

C. $84.78 \ in^2$

D. $141.30 \ in^2$

MA.912.G.7.1

49. The net in the figure below can be folded into which of the following three-dimensional solids?

A. Triangular prism

B. Rectangular prism
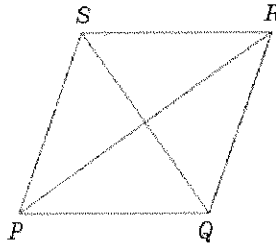
C. Triangular pyramid

D. Square pyramid

MA.912.G.7.1

50. Two tetrahedra are congruent. One tetrahedron is glued to the other so that the glued faces of the two tetrahedra completely cover each other, producing a new polyhedron. How many faces does the new polyhedron have?

A. 6

B. 7

C. 8

D. 9

MA.912.G.3.4
51. If $PQRS$ is a rhombus, which statement must be true?

A. $\angle PSR$ is a right angle.
B. $\overline{PR} \cong \overline{QS}$
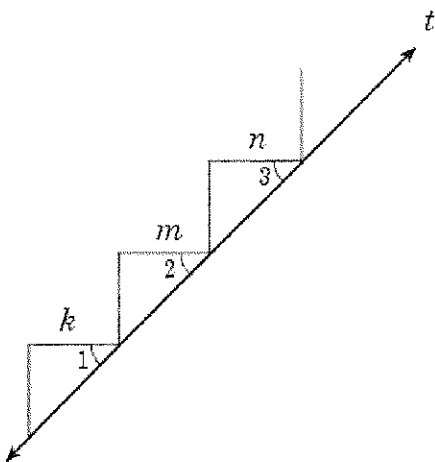C. $\angle PQR \cong \angle QRS$
D. $\overline{PQ} \cong \overline{QR}$

MA.912.G.2.2
52. The measure of each exterior angle of a regular polygon is 45°. How many sides does the polygon have?

A. 4
B. 5
C. 8
D. 9

MA.912.G.8.4
53. Given: $k \parallel m \parallel n$

Which statement justifies the conclusion that $\angle 1 \cong \angle 2 \cong \angle 3$

A. If $k \parallel m \parallel n$ and are cut by transversal t, then alternate interior angles are congruent.
B. If $k \parallel m \parallel n$ and are cut by transversal t, then vertical angles are congruent.
C. If $k \parallel m \parallel n$ and are cut by transversal t, then alternate exterior angles are congruent.
D. If $k \parallel m \parallel n$ and are cut by transversal t, then corresponding angles are congruent.

MA.912.D.6.2

54. Which statement is the inverse of the statement below?

If a quadrilateral is a rectangle, then it is a parallelogram.

A. If a quadrilateral is not a parallelogram, then it is not a rectangle.
B. If a quadrilateral is a parallelogram, then it is a rectangle.
C. If a quadrilateral is not a rectangle, then it is not a parallelogram.
D. A quadrilateral is a rectangle if and only if it is a parallelogram.

MA.912.G.2.3

55. Which parts must be congruent to prove $\triangle PQR \cong \triangle PSR$ by SAS?
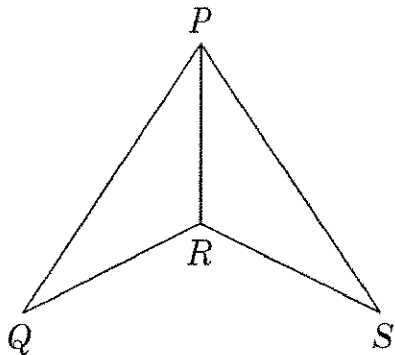
A. $\angle Q \cong \angle S$ and $\overline{QP} \cong \overline{SP}$
B. $\angle Q \cong \angle S$ and $\overline{QR} \cong \overline{SR}$
C. $\angle QRP \cong \angle SRP$ and $\overline{QP} \cong \overline{SP}$
D. $\angle QPR \cong \angle SPR$ and $\overline{QP} \cong \overline{SP}$

MA.912.G.7.1

56. The igure below is a dodecahedron, one of the Platonic Solids.
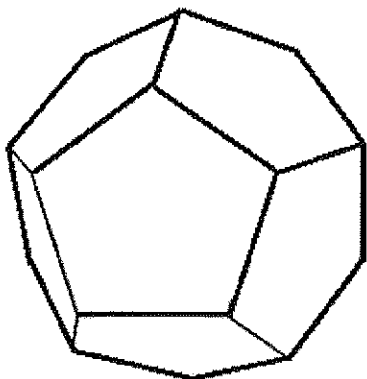
How many edges does this solid have?

A. 40
B. 30
C. 20
D. 10

MA.912.G.4.6

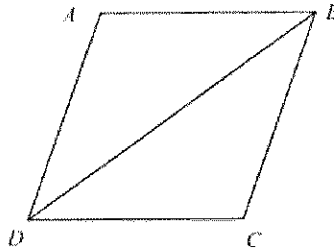**57.** What is the missing reason for the proof?

    Given: Parallelogram ABCD with diagonal BD

    Prove: $\triangle ABD \cong \triangle CDB$

Statements	Reasons
1. $\overline{AD} \parallel \overline{BC}$	1. Definition of parallelogram
2. $\angle ADB \cong \angle CBD$	2. Alternate Interior Angles Theorem
3. $\overline{AB} \parallel \overline{CD}$	3. Definition of parallelogram
4. $\angle ABD \cong \angle CDB$	4. Alternate Interior Angles Theorem
5. $\overline{DB} \cong \overline{DB}$	5. Reflexive Property of Congruence
6. $\triangle ABD \cong \triangle CDB$	6. ?

    A. Reflexive Property of Congruence
    B. ASA
    C. Alternate Interior Angles Theorem
    D. SSS

MA.912.G.5.4

58. As an assignment, two students in a surveying class had to ind the distance between two trees separated by a pond. Starting at the pine tree, they walked until they found a point that they marked as the survey point. The angle formed between the pine tree, the survey point, and the oak tree was 60°. Their sketch is shown below.
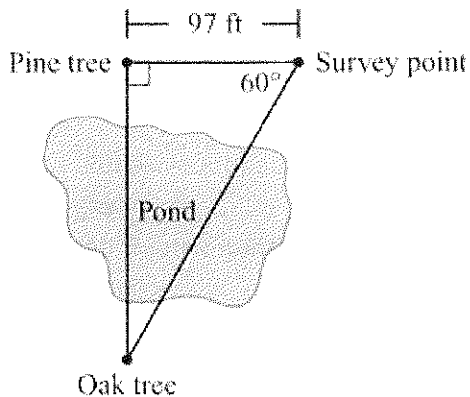
To the nearest foot, what is the distance between the pine tree and the oak tree?
    A. 168 $ft.$
    B. 194 $ft.$
    C. 291 $ft.$
    D. 336 $ft.$

MA.912.D.6.2

59. Look at the conditional statement.

"If a figure is a pentagon, then it has five sides"

Which statement is the inverse?

A. If a figure has five sides, then it is a pentagon.

B. If a figure is a pentagon, then it does not have five sides.

C. If a figure does not have five sides, then it is not a pentagon.

D. If a figure is not a pentagon, then it does not have five sides.

MA.912.G.3.4

60. Given that ABCD is a parallelogram, a student wrote the proof below to show that a pair of its opposite angles are congruent.
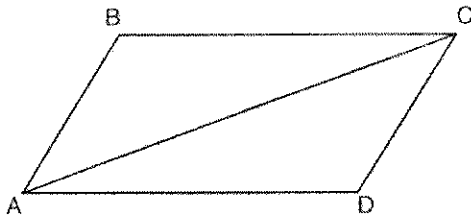

Statement	Reason
1. ABCD is a parallelogram.	1. Given
2. $\overline{BC} \cong \overline{AD}$ $\overline{AB} \cong \overline{DC}$	2. Opposite sides of a parallelogram are congruent.
3. $\overline{AC} \cong \overline{CA}$	3. Reflexive Postulate of Congruency
4. $\triangle ABC \cong \triangle CDA$	4. Side-Side-Side
5. $\angle B \cong \angle D$	5. _____

What is the reason justifying that $\angle B \cong \angle D$?

A. Opposite angles in a quadrilateral are congruent.

B. Parallel lines have congruent corresponding angles.

C. Corresponding parts of congruent triangles are congruent.

D. Alternate interior angles in congruent triangles are congruent.

MA.912.G.2.2

61. In the diagram below of $\triangle ABC$, $\overline{AB} \cong$, $\overline{AC}$, $m\angle A = 3x$, and $m\angle B = x + 20$.
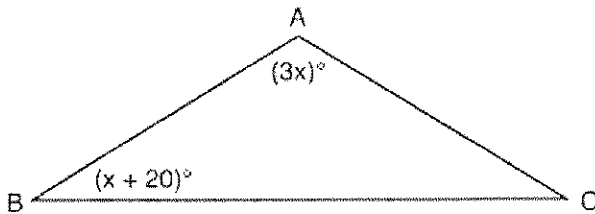
What is the value of x?

A. 10

B. 28

C. 32

D. 40

MA.912.D.6.2

62. What is the converse of the statement *"If Bob does his homework, then George gets candy"*?

    A. If George gets candy, then Bob does his homework.

    B. Bob does his homework if and only if George gets candy.

    C. If George does not get candy, then Bob does not do his homework.

    D. If Bob does not do his homework, then George does not get candy.

MA.912.G.4.7

63. In $\triangle PQR$, $PQ = 8$, $QR = 12$, and $RP = 13$. Which statement about the angles of $\triangle PQR$ must be true?

    A. $m\angle Q > m\angle P > m\angle R$

    B. $m\angle R > m\angle P > m\angle Q$

    C. $m\angle Q > m\angle R > m\angle P$
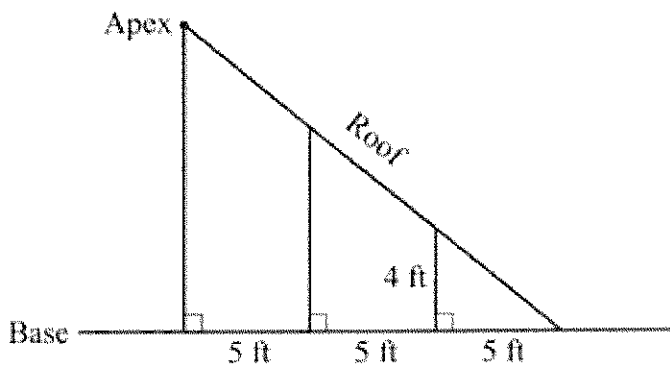
    D. $m\angle P > m\angle R > m\angle Q$

MA.912.D.6.2

64. What is the contrapositive of the statement, *"If I am tall, then I will bump my head"*?

    A. If I bump my head, then I am tall.

    B. If I do not bump my head, then I am tall.

    C. If I am tall, then I will not bump my head.

    D. If I do not bump my head, then I am not tall.

MA.912.G.2.3

65. The diagram below shows a part of a roof. The highest part of the roof is called the apex.

How many feet above the base is the apex of the roof?

A. 8

B. 9

C. 12

D. 20