Name:_____ Date:_____
7.G.2

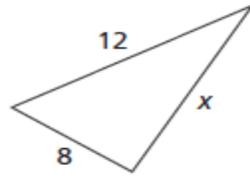_____1. Which number could **not** be a value of x ?   (2014)

12

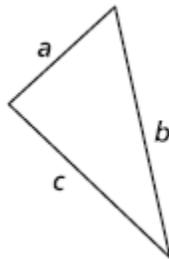x

8

[not drawn to scale]

A. 8   B. 9   C. 12   D. 21

_____2. Which set of angle measures could be the interior angles of a triangle?   (2018)

A. 90°, 90°, 90°   B. 80°, 80°, 200°   C. 40°, 50°, 60°   D. 15°, 30°, 135°

_____3. A triangle with side lengths a, b, and c is shown below.

a

b
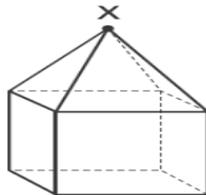
c

Which statement about the side lengths must be true? (2022)

A. a + b > c   B. b + c < a   C. a + b < c   D. a + c < b

7.G.3

_____1. The figure below consists of a square pyramid on top of a cube. A vertical plane passes through point X and is perpendicular to the bases of both shapes, slicing the figure into equal halves.

X

What shape is created by the intersection of the vertical plane and these three-dimensional shapes?   (2017) no calculator

A.   square   B. triangle   C. hexagon   D. pentagon

_____2. The dimensions of a square right pyramid are shown below.   (2018)
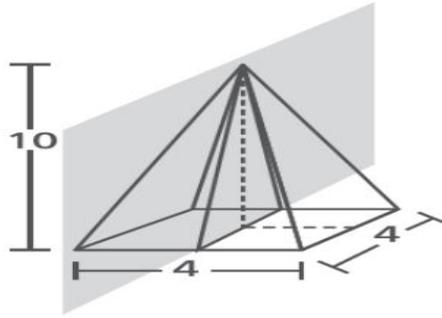

The pyramid is sliced by a plane that passes vertically through the top vertex and is perpendicular to the base. What is the resulting two-dimensional shape and the area of the plane section?

A. A triangle with an area of 20 square units   C. A rectangle with an area of 16 square units

B. A triangle with an area of 40 square units   D. A rectangle with an area of 40 square units

7.G.5

_____1. In the diagram below, three lines intersect at *N*. The measure of ∠*GNF* is 60°, and the measure of ∠*MNL* is 47°.   (2014)
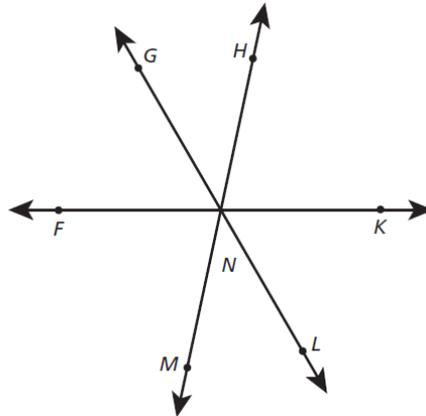
What is the measure of ∠*HNK*?

A. 47°   B. 60°   C. 73°   D. 107°

_____2. What is the value of *n* in the diagram below?   (2015)

(n + 18)°

(2n)°

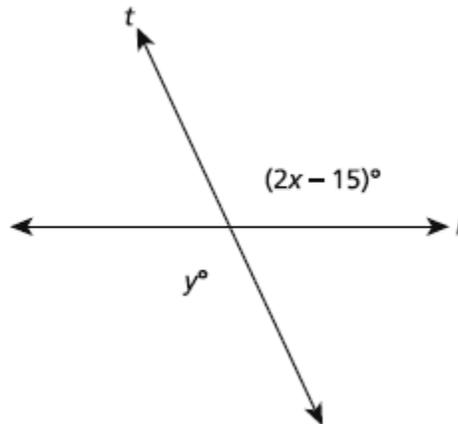[not drawn to scale]
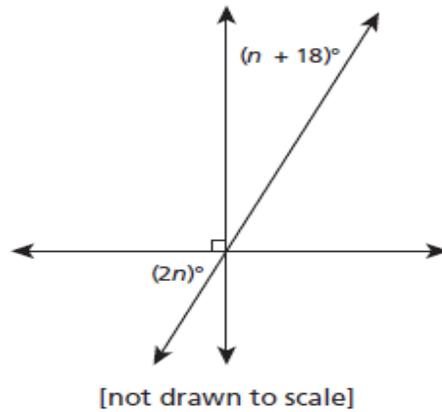
A. 18   B. 24   C. 42   D. 48

_____3. Two intersecting lines, l and t, are shown in the diagram below.

t

(2x − 15)°

y°

l

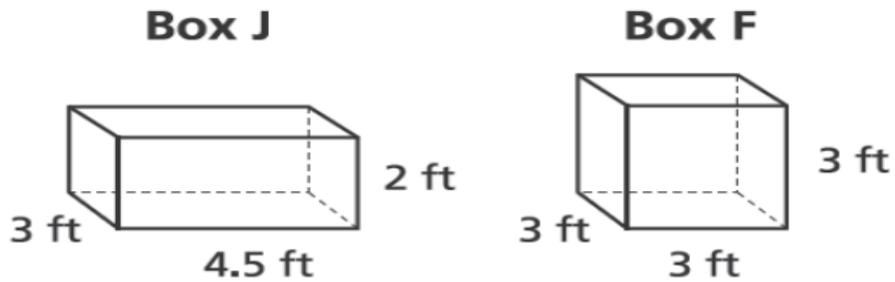If y = 115, what is the value of x ?   (2022)
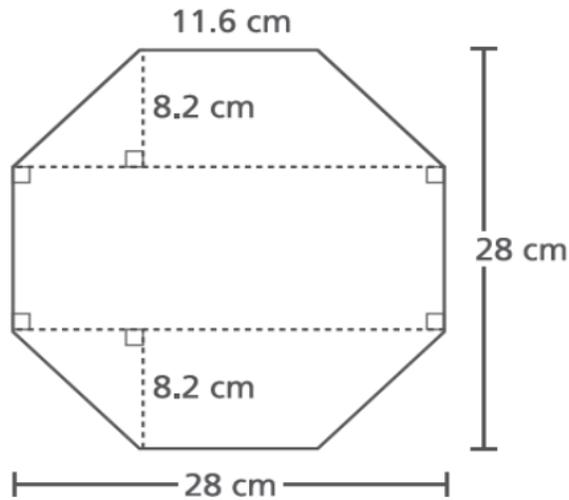
A. 40   B. 50   C. 65   D. 115

7.G.6

_____1. Two types of shipping boxes are shown below.

Box J

Box F

3 ft

2 ft

3 ft

3 ft

3 ft

4.5 ft

3 ft

What is the difference in the surface areas, in square feet, of the two boxes? (2017)

A. 2   B. 3   C. 21   D. 30

_____2. The octagon shown below has eight congruent sides. The given measures of the octagon are rounded to the nearest tenth of a centimeter.   (2018)

11.6 cm

8.2 cm

28 cm

8.2 cm

28 cm

What is the area, to the nearest square centimeter, of the octagon?

A. 392   B. 487   C. 650   D. 720

_____3. Patty has a flower box in the shape of a rectangular prism with interior dimensions that are 15 inches in length, 8 inches in width, and 6 inches in height. Patty will fill the flower box ¾ full of soil. How many cubic inches of soil will be in the flower box?   (2019 and 2021)

A.   387   B. 516   C. 540   D. 720

_____4. There are two boxes of cereal in the shape of rectangular prisms on a shelf. The dimensions of each box of cereal are listed below.

- Box A has a height of 25 centimeters, a length of 20 centimeters, and a width of 9 centimeters.
- Box B has a height of 25 centimeters, a length of 19 centimeters, and a width of 6 centimeters.

What is the difference in volume, in cubic centimeters, between the two boxes of cereal? (2022)

A. 1,650   B. 3,900   C. 4,500   D. 7,350