

Name: _____ Class: _____ Date: _____

Math Course 2 - Unit 4 - Version B - Print

1

Angle D measures 63° and is complementary to $\angle E$. Which of the following equations can be used to find the measure of $\angle E$?

- A) $63^\circ + m\angle E = 90^\circ$
- B) $63^\circ + m\angle E = 180^\circ$
- C) $m\angle E - 63^\circ = 90^\circ$
- D) $m\angle E - 63^\circ = 180^\circ$

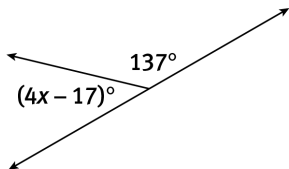
2

Two adjacent angles, $\angle A$ and $\angle B$, are supplementary. The measure of $\angle A$ is $5x + 8$ and the measure of $\angle B$ is $4x + 10$. What is the value of x ?

- A) 2
- B) 8
- C) 18
- D) 22

3

The diagram below shows two adjacent angles.

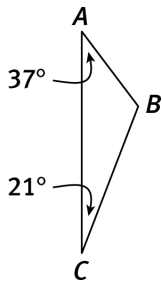


Which of the following equations correctly illustrates the relationship between the two angles?

- A) $4x - 17 = 137$
- B) $(4x - 17) + 137 = 90$
- C) $(4x - 17) + 137 = 180$
- D) $(4x - 17) - 137 = 180$

4

Triangle ABC is shown.



- A) 122°
- B) 143°
- C) 159°
- D) 164°

5

Angle G and $\angle H$ are vertical angles. The measure of $\angle G$ is equal to $(6x - 7)^\circ$ and $m\angle H$ is equal to $(2x + 17)^\circ$. What is the measure of $\angle H$?

- A) 10°
- B) 22°
- C) 23°
- D) 29°

6

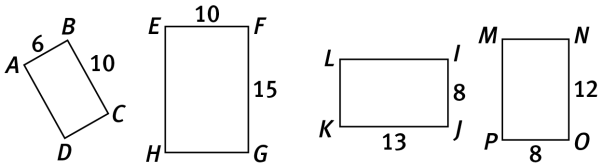
Write each group of side lengths that may be used to make a triangle in the box.

Possible Triangles

- 3 meters, 5 meters, and 6 meters
- 11 feet, 7 feet, and 4 feet
- 7 inches, 3 inches, and 12 inches
- 9 millimeters, 10 millimeters, and 6 millimeters

7

Two of the four rectangles shown below are similar.

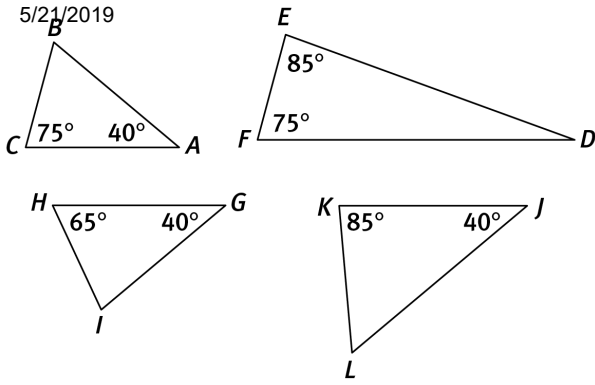


Which rectangles are similar?

- A) ABCD and MNOP
- B) ABCD and EFGH
- C) EFGH and MNOP
- D) EFGH and IJKL

8

Four triangles are shown below, two of which are similar.

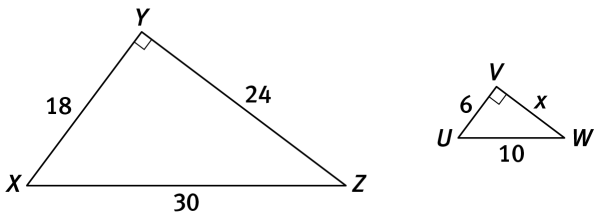


Which triangles are similar?

- A) $\triangle ABC$ and $\triangle DEF$
- B) $\triangle DEF$ and $\triangle GHI$
- C) $\triangle ABC$ and $\triangle GHI$
- D) $\triangle GHI$ and $\triangle JKL$

9	
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The triangles below are similar.

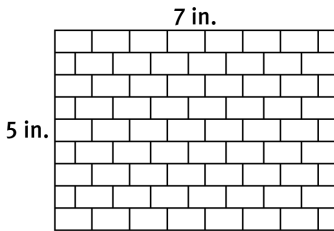


What is the value of x?

- A) 3
- B) 4
- C) 7
- D) 8

10	
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A landscaper produces a scale drawing of a patio for a client. The drawing of the patio has a width of 5 inches and a length of 7 inches.

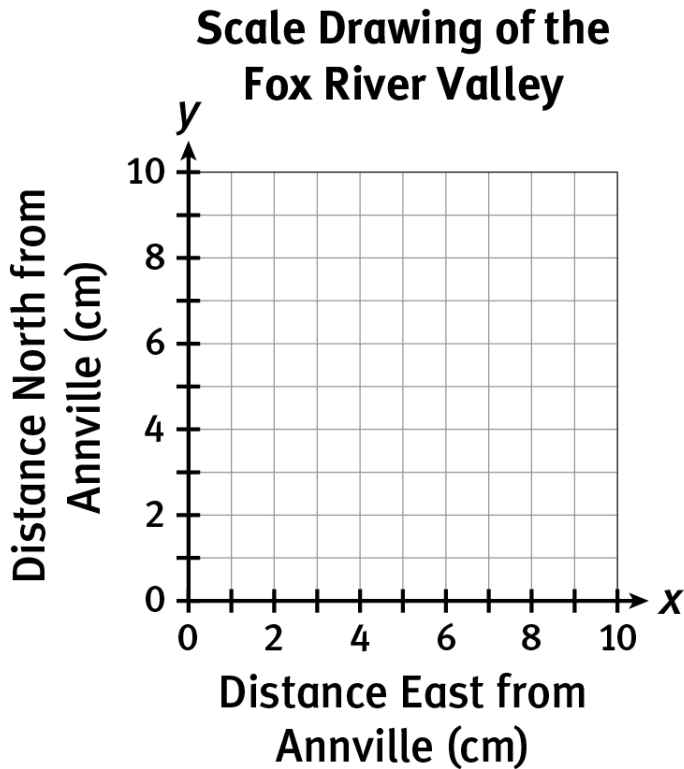


If the actual width of the patio is 35 feet, what is the actual length of the patio?

- A) 25 feet
- B) 37 feet
- C) 40 feet
- D) 49 feet

Three cities on a map of the Fox River Valley are connected by lines to form a right triangle. Beantown is 180 miles north of Annville. Carson City is 240 miles east of Annville. The distance between Beantown and Carson City is 300 miles.

Use a scale of 1 cm : 30 mi to produce a drawing of the triangle connecting the cities. Start with Annville at the point (0,0). The values on the x- and y-axes are in centimeters.



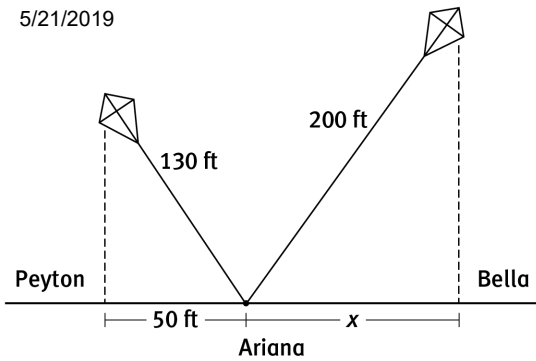
12

A 10-foot-tall statue casts a shadow that is 15 feet long at the same time a nearby tree casts a 25-foot shadow. What is the height of the tree?

- A) 6 ft
- B) $16\frac{2}{3}$ ft
- C) 20 ft
- D) $37\frac{1}{2}$ ft

13

Ariana is flying two kites, each using a different amount of string. Both kites are flying at the same angle with the ground. Ariana is standing between her friends Peyton and Bella, as shown below.



(Figure not drawn to scale.)

What ratio can be used to determine the distance between Bella and Ariana?

- A) $\frac{50}{130} = \frac{200}{x}$
- B) $\frac{50}{x} = \frac{200}{130}$
- C) $\frac{50}{200} = \frac{130}{x}$
- D) $\frac{50}{x} = \frac{130}{200}$

14

A circle has a radius of 3 cm.

What is the the circle's circumference expressed as a decimal?

- A) 4.71 cm
- B) 9.42 cm
- C) 18.84 cm
- D) 37.68 cm

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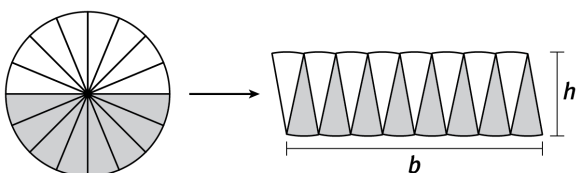
A circular swimming pool has a circumference of 132 ft .

What is the radius of the pool? Use $\frac{22}{7}$ for π .

- A) 11 ft
- B) 21 ft
- C) 42 ft
- D) 84 ft

16

A circle with a diameter of 28 inches is divided into equal sectors. The sectors are placed side-by-side in a row to form a figure similar to a parallelogram in shape.



(Figure not drawn to scale.)

A) 57.96 (2)

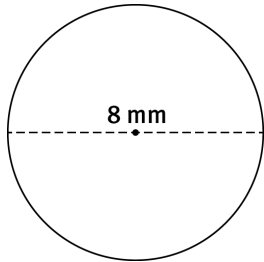
B) 43.96 (14)

C) 87.92 (14)

D) 87.92 (28)

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A circle with its diameter is shown below.

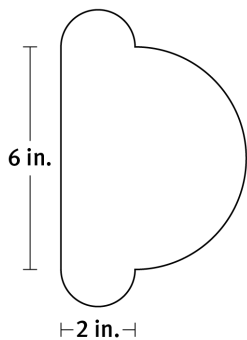


What is the area of the circle expressed as a decimal rounded to the nearest hundredth?

A) 12.56 mm²B) 25.12 mm²C) 50.24 mm²D) 200.96 mm²

18

Complete the sentences to find the area of the composite figure.



The composite figure shown can be divided into a rectangle with an area of in², two identical semicircles with a combined area of in², and a larger semicircle with an area of in².

The total area of the composite figure is in².

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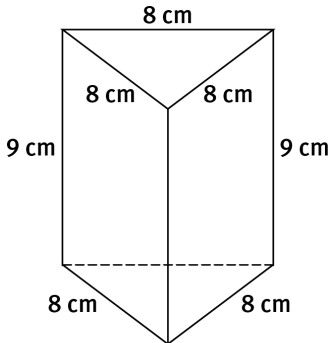
A triangular prism is shown below.



A cross section of the triangular prism that is parallel to the base is a [triangle / rectangle / square]. A cross section of the triangular prism that is perpendicular to the base is a [triangle / rectangle / square].

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Consider the triangular pyramid below.



(Figure not drawn to scale.)

What is the area of each lateral face of the triangular pyramid?

- A) $16\sqrt{3} \text{ cm}^2$
- B) $32\sqrt{3} \text{ cm}^2$
- C) 72 cm^2
- D) 216 cm^2

21

The base of a regular square pyramid has sides that are 10 cm long. The pyramid has a height of 12 cm. The slant height of the pyramid is 13 cm. What is the lateral area of the pyramid?

- A) 65 cm^2
- B) 260 cm^2
- C) 360 cm^2
- D) 650 cm^2

22

A square pyramid has a total surface area of 2225 ft^2 . The sides of the base each measure 25 ft. Which of the following statements are true?

Select all that apply.

- The pyramid has a slant height of 7.12 ft.
- The pyramid has a slant height of 32 ft.
- The pyramid has a slant height of 44.5 ft.
- The pyramid has a lateral area of 625 ft^2 .
- The pyramid has a lateral area of 1600 ft^2 .

23

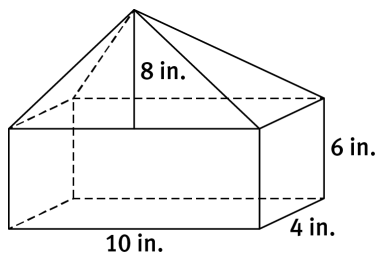
Both the length, l , and the width, w , of a rectangular prism with height h are doubled. The new prism formed has the same volume as the original prism.

Which expression correctly represents the height of the new prism?

- A) $\frac{1}{4}h$
- B) $\frac{1}{2}h$
- C) $2h$
- D) $4h$

24

A complex solid is shown below.



(Figure not drawn to scale.)

What is the volume of the rectangular pyramid in the figure?

- A) $26\frac{2}{3} \text{ in}^3$
- B) 80 in^3
- C) $106\frac{2}{3} \text{ in}^3$
- D) 160 in^3

25

A complex solid is made up of a square pyramid on top of four identical cubes. The sides of the square base of the pyramid are 8 centimeters and the height of the pyramid is 6 centimeters. The volume of the complex solid is 236 centimeters. What is the volume of each cube?

- A) 3 cm^3
- B) 27 cm^3
- C) 55 cm^3
- D) 108 cm^3