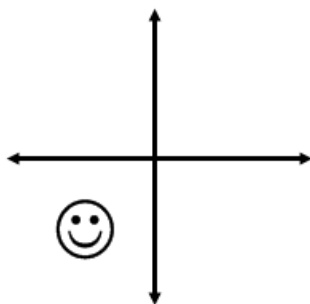




MCAS OLYMPICS

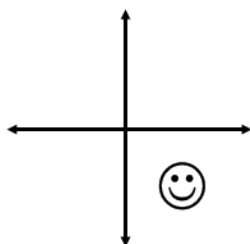
Event: GEOMETRY GYMNASTICS .
Round 2

1. The coordinate plane shown below has a figure in the third quadrant.

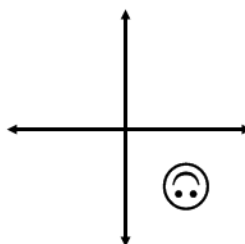


Which of the following shows the same figure after it has been reflected across the y-axis and then reflected across the x-axis?

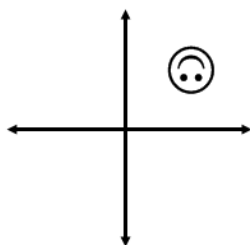
a.



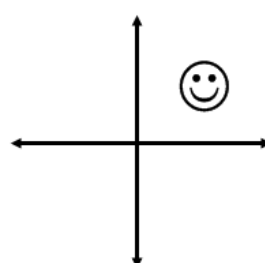
b.



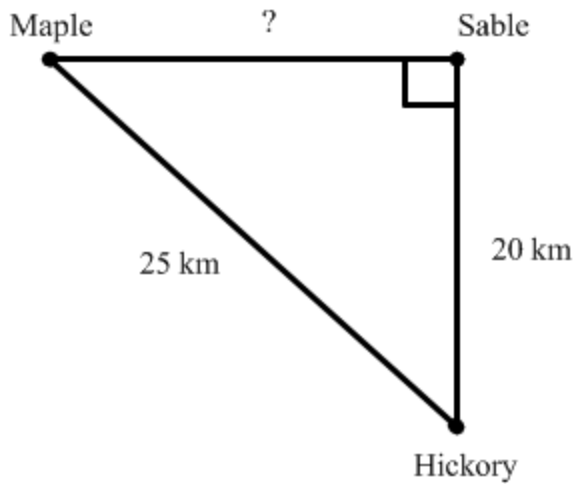
c.



d.



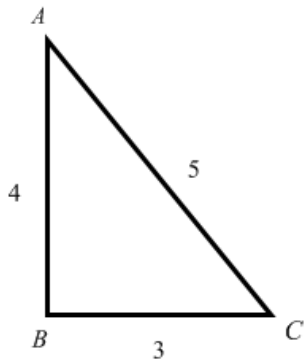
2. The roads connecting the three towns on the map below form a right triangle. Two of the distances are given.



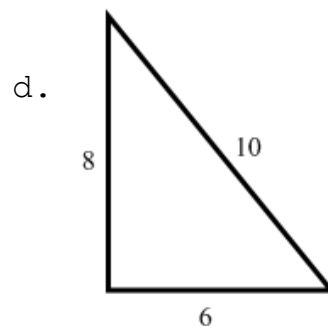
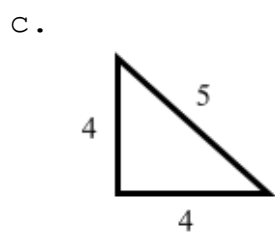
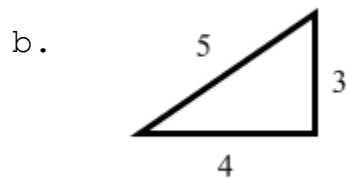
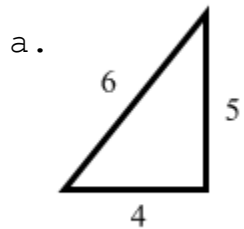
Based on the distances given on the map, what is the distance between Maple and Sable?

- a. 12 km
- b. 15 km
- c. 16 km
- d. 19 km

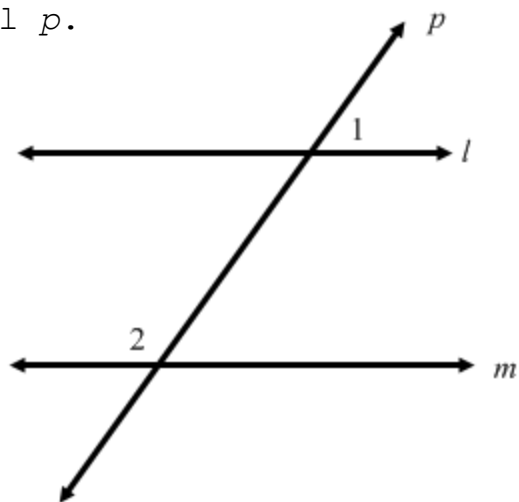
3. Right triangle ABC and its dimensions are shown below.



Which of the following figures is similar to but not congruent to triangle ABC ?

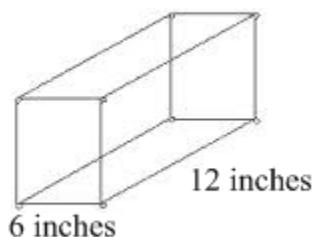


4. In the figure below, parallel lines l and m are intersected by transversal p .



If the measure of $\angle 1$ is 50° , what is the measure of $\angle 2$?

5. A shipping box is in the shape of a rectangular prism, as shown below.



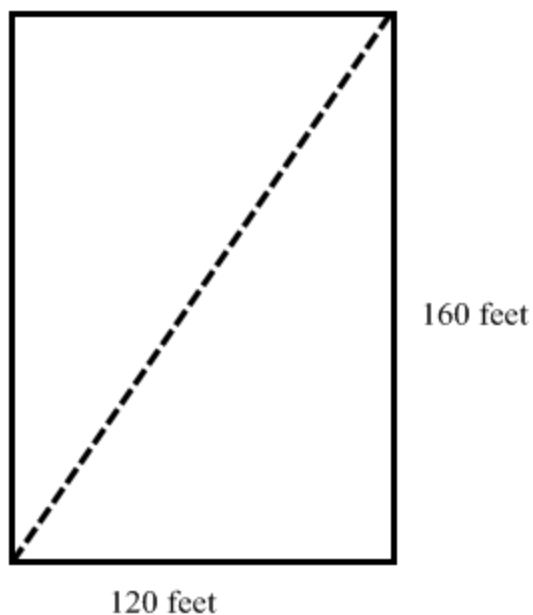
- It has a length of 12 inches
- It has a width of 6 inches
- It has a volume of 288 cubic inches

What is the height, in inches, of the shipping box?

6. The area of a square is 49 square inches. What is the length of one side of the square?

- a. 49 inches b. 25 inches c. 12 inches d. 7 inches

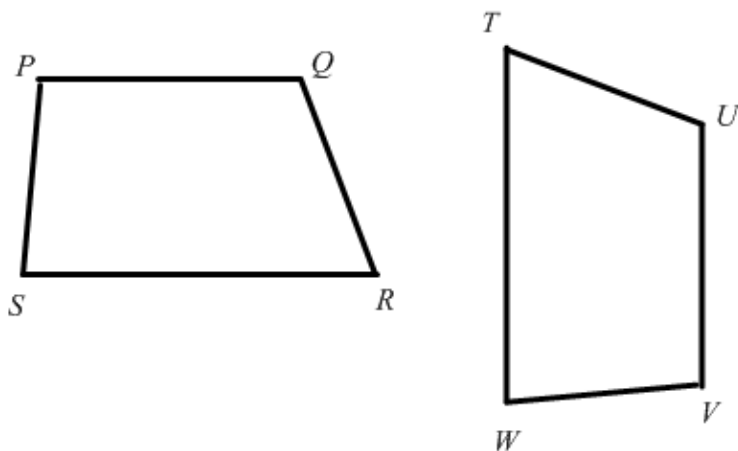
7. The diagram below shows the dimensions of a rectangular field.



What is the length of the diagonal of the field?

- a. 120 ft. b. 200 ft. c. 394 ft. d. 520 ft.

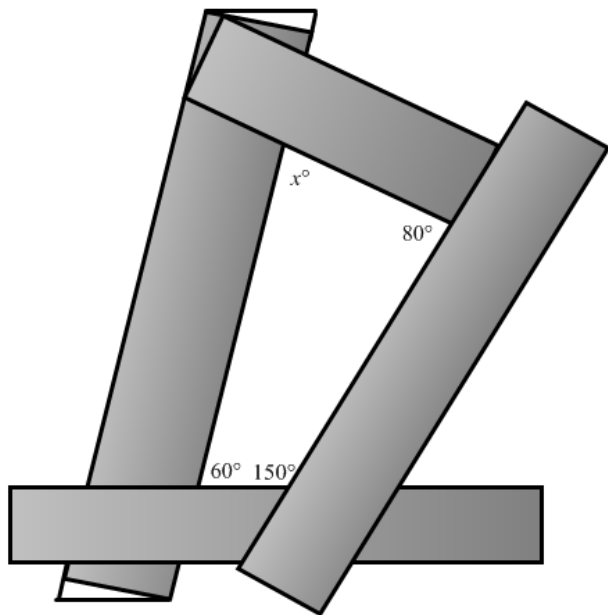
8. In the figure below, quadrilateral $PQRS$ is congruent to quadrilateral $VUTW$.



Which of the following pairs of angles **must** be congruent?

- a. $\angle P$ and $\angle Q$ b. $\angle Q$ and $\angle U$
c. $\angle R$ and $\angle V$ d. $\angle S$ and $\angle T$

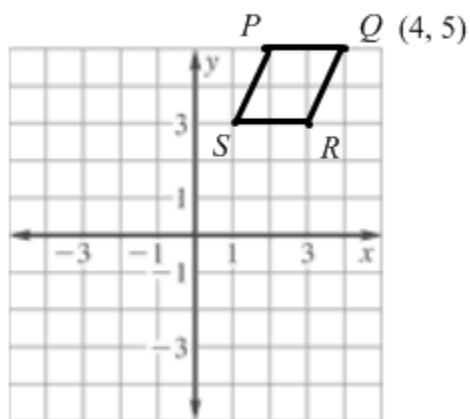
9. Intersecting sidewalks surround a playground shaped like a quadrilateral, as shown in the diagram below.



Based on the angle measures in the diagram, what is the value of x ?

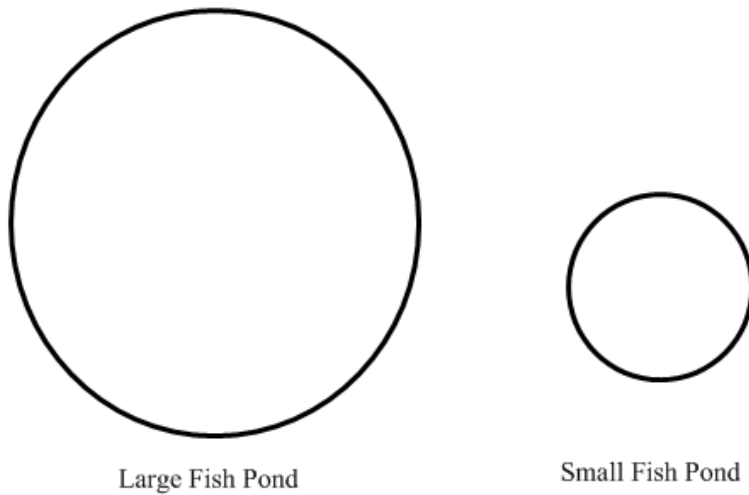
- A. 70° B. 80°
C. 120° D. 150°

10. Parallelogram $PQRS$ and the coordinates of point Q are shown on the coordinate plane below.



What are the coordinates of the image of point Q after parallelogram $PQRS$ is translated 6 units to the left?

11. A park has a large fish pond and a small fish pond, as shown below.

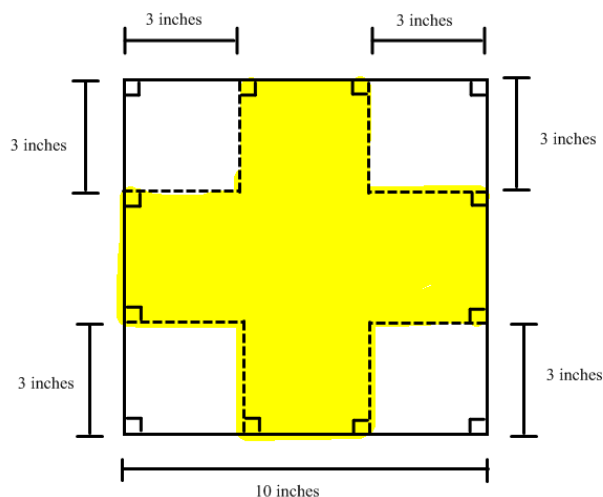


- Each pond is in the shape of a circle.
- The radius of the large fish pond is 4 times the radius of the small fish pond.

Based on this information, which of the following statements is true?

- A. The area of the large pond is 2 times the area of the small pond.
- B. The area of the large pond is 4 times the area of the small pond.
- C. The area of the large pond is 8 times the area of the small pond.
- D. The area of the large pond is 16 times the area of the small pond.

12. Madelyn had a square piece of cardboard that was 10 inches in length. She cut one 3-inch square from each corner as shown below.



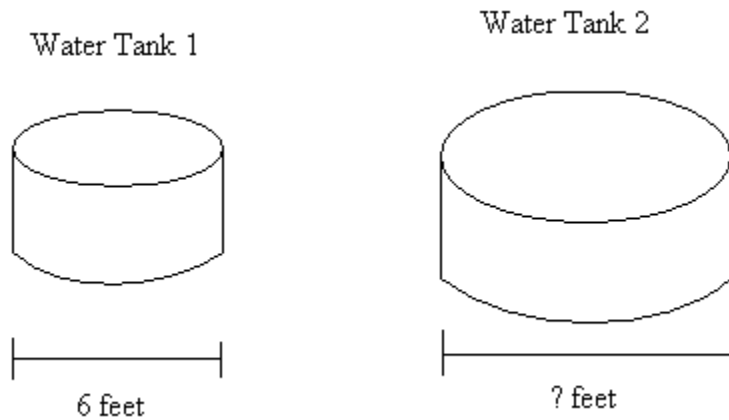
The shaded part represents the remaining cardboard. What is the area of the remaining cardboard?

- A. 36 sq. in.
- B. 48 sq. in.
- C. 64 sq. in.
- D. 80 sq. in.

13. A rancher has two water tanks.

- Each water tank is in the shape of a cylinder.
- The base of each water tank is in the shape of a circle.

Diagrams of the two water tanks are shown below.



- What is the circumference, in feet, of the base of Water Tank 1? Show or explain how you got your answer. (Use 3.14 for π)
- The circumference of the base of Water Tank 2 is 6.28 feet longer than that of Water Tank 1. What is the diameter, in feet, of the base of Water Tank 2? Show or explain how you got your answer. (Use 3.14 for π)
- How many more square feet does the base of Water Tank 2 cover than the base of Water Tank 1? Show or explain how you got your answer. (Use 3.14 for π)