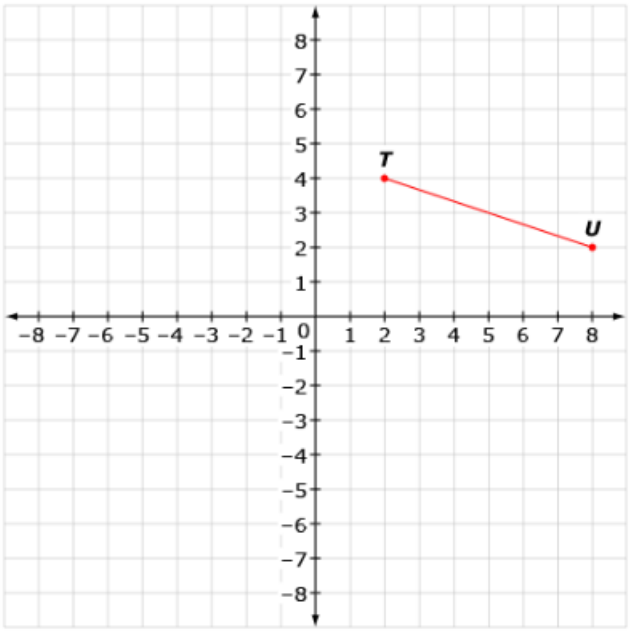
Level 4: Geometry Pre-Test

Question 1:

Study the coordinate grid below.



The line TU is rotated 180° about the origin and translated 2 units to the right.

What is the new location of T, which is now T' ?

a. $T' = (-2, -4)$

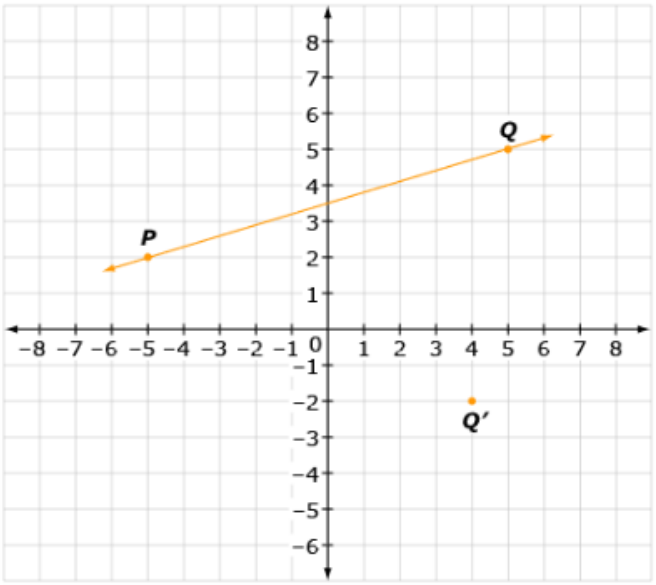
b. $T' = (4, 4)$

c. $T' = (-2, 2)$

d. $T' = (0, -4)$

Question 2:

Use the graph to answer the following question.



Which coordinates for Point P' would make $\overline{P'Q'}$ parallel to $\overline{PQ}$?

a. (−3, −4)

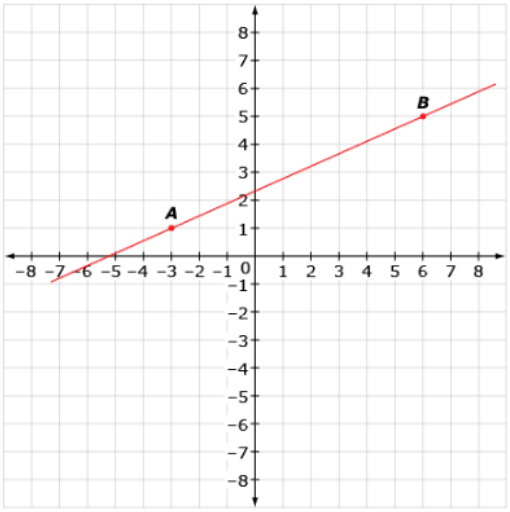
b. (2, −5)

c. (−4, −5)

d. (−6, −5)

Question 3:

Use the graph to answer the following question.



Segment AB is dilated by a factor of $\frac{1}{2}$ with the origin at the center of the dilation to make a segment $A'B'$.

What is the length, to the nearest whole number, of segment $A'B'$?

a. 5

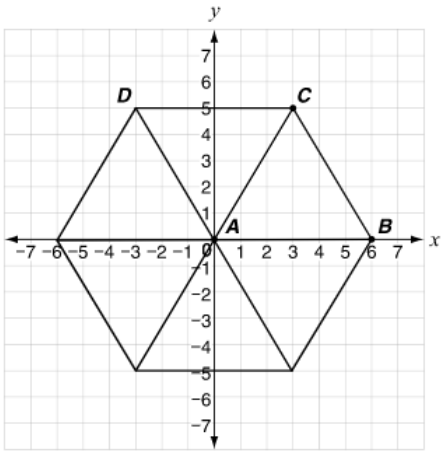
b. 6

c. 8

d. 9

Question 4:

A regular hexagon is shown on this coordinate plane. The figure is made up of six congruent triangles.



Which transformation can be used on $\triangle ABC$ to show that $\triangle ABC$ and $\triangle ACD$ are congruent?

a. reflection over $\overline{AB}$

b. translation along the x-axis

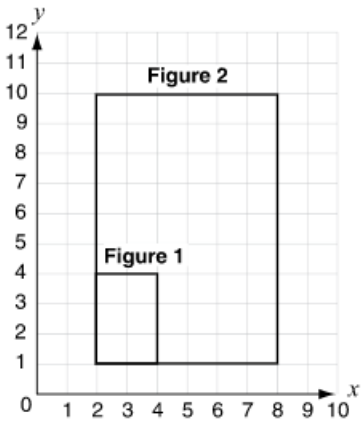
c. rotation of 60° clockwise about Point A

d. rotation of 60°counterclockwise about Point A

Continue

Question 5:

Two rectangles are shown on this coordinate plane.



Which dilation can be performed on Figure 1 to show that Figure 1 is similar to Figure 2?

a. a dilation with a center at (2, 1) and a scale factor of 3

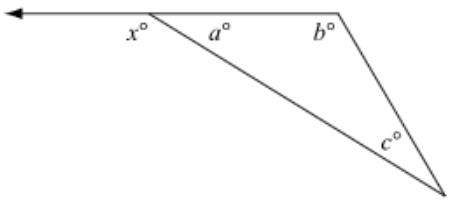
b. a dilation with a center at (2, 1) and a scale factor of 4

c. a dilation with a center at (1, 2) and a scale factor of 3

d. a dilation with a center at (1, 2) and a scale factor of 4

Question 6:

Which equation is true for this diagram?



a. $x = a + b$

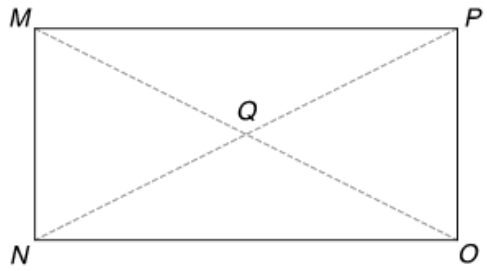
b. $x = b + c$

c. $x = 90° - a$

d. $x = 180° - c$

Question 7:

Look at this diagram.



Which of the following must be true if the diagram is rectangular?

a. $MO = \sqrt{NO^2 + MN^2}$

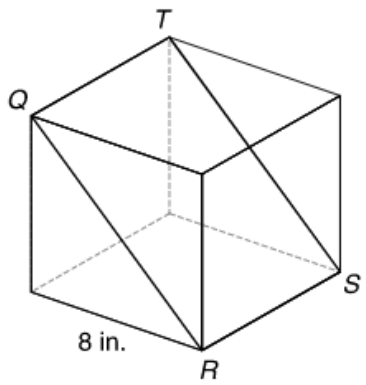
b. $MO = \sqrt{NO^2 - MN^2}$

c. $MN = \sqrt{NO^2 + MO^2}$

d. $MN = \sqrt{NO^2 - MO^2}$

Question 8:

This figure shows a cube with edges 8 inches long.



What is the area, in square inches, of the rectangle *QRST*?

a. $4\sqrt{32}$

b. $4\sqrt{64}$

c. $8\sqrt{64}$

d. $8\sqrt{128}$

Question 9:

Cones P and Q have the same height. The radius of Cone Q is 3 times the radius of Cone P. What is true about the relationship of the volumes of the two cones?

a. The volume of Cone Q is 3 times greater than the volume of Cone P.

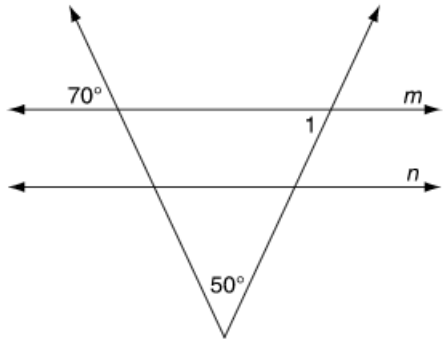
b. The volume of Cone Q is 6 times greater than the volume of Cone P.

c. The volume of Cone Q is 9 times greater than the volume of Cone P.

d. The volume of Cone Q is 27 times greater than the volume of Cone P.

Question 10:

Parallel lines *m* and *n* are cut by two transversals, as shown below.



What is the measure, in degrees, of ∠1?

°

Question 11:

Two figures are shown on a coordinate plane below.

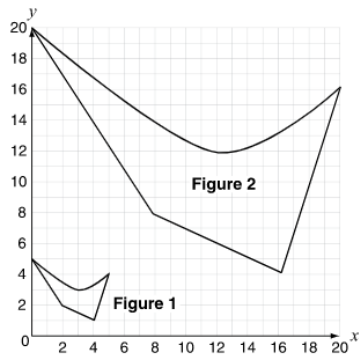


Figure 1 is dilated, with a center at the origin, to show that it is similar to Figure 2. What is the scale factor?

Continue

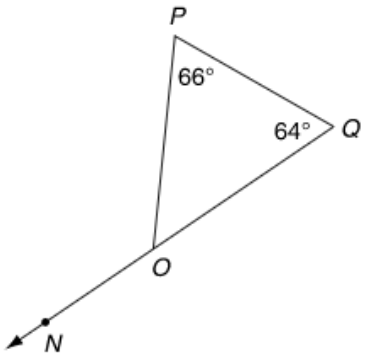
Question 12:

What is the volume, in cubic inches, of a sphere with a diameter of 3 inches? Use 3.14 for π. Round your answer to the nearest cubic inch.

in^3

Question 13:

Study the figure below.

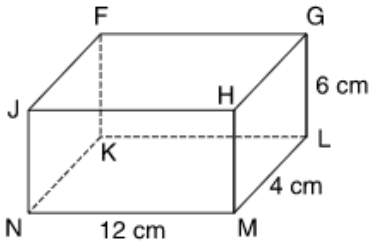


What is the measure, in degrees, of $\angle NOP$?

°

Question 14:

Look at this right rectangular prism.



What is the length of line segment JL?

a. 6.97 cm

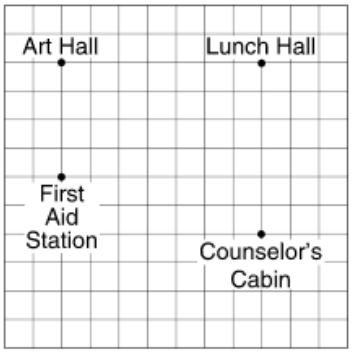
b. 12.65 cm

c. 14 cm

d. 22 cm

Question 15:

Look at this map of a campground. Each square on the map has a side length of 100 feet.



Which expression represents the distance, in feet, between the first aid station and the lunch hall?

a. $\sqrt{(700 - 400)^2}$

b. $\sqrt{(700 + 400)^2}$

c. $\sqrt{700^2 - 400^2}$

d. $\sqrt{700^2 + 400^2}$

Stop