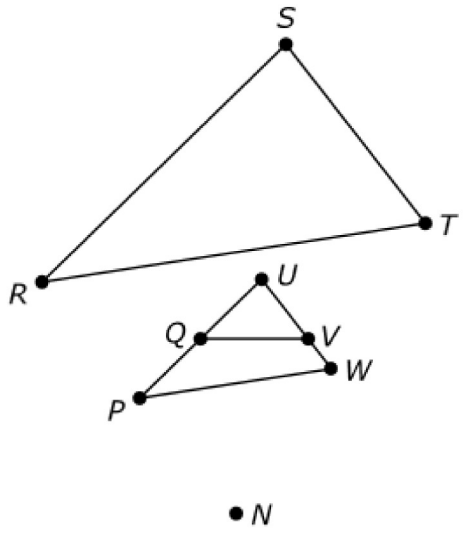
10. **VH097075**

Three triangles are shown.



Conditions about the triangles are given:

- $\angle S \cong \angle U$
- $\overline{SR}$ is the image of $\overline{UP}$ under a dilation with scale factor 2 and center *N*.
- $\overline{ST}$ is the image of $\overline{UW}$ under a dilation with scale factor 2 and center *N*.
- $\overline{UQ}$ is the image of $\overline{UP}$ under a dilation with scale factor $\frac{1}{2}$ and center *U*.
- $\overline{UV}$ is the image of $\overline{UW}$ under a dilation with scale factor $\frac{2}{3}$ and center *U*.

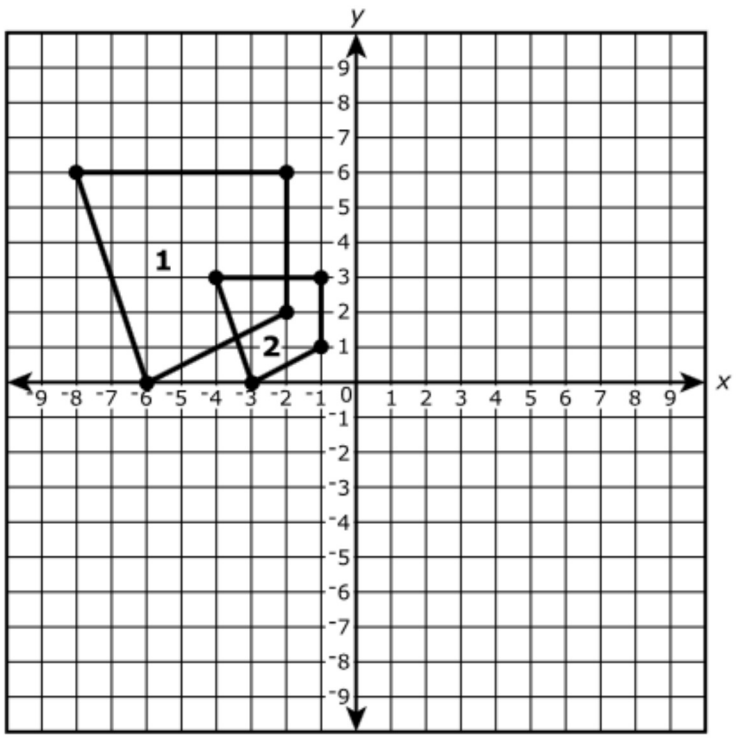
Determine whether each statement is true or false.

Select one cell per row.

Statement	True	False
$\triangle UPW \sim \triangle SRT$	☐	☐
$\triangle UPW \sim \triangle UQV$	☐	☐
$\triangle UQV \sim \triangle SRT$	☐	☐

11. **M43139**

The diagram shows two quadrilaterals graphed on a coordinate plane.



Which transformation on quadrilateral 1 can be used to verify that it is similar to quadrilateral 2?

A. A dilation by a scale factor of $\frac{1}{2}$ centered at the origin.

B. A dilation by a scale factor of $\frac{1}{2}$ centered at $(-6, 0)$.

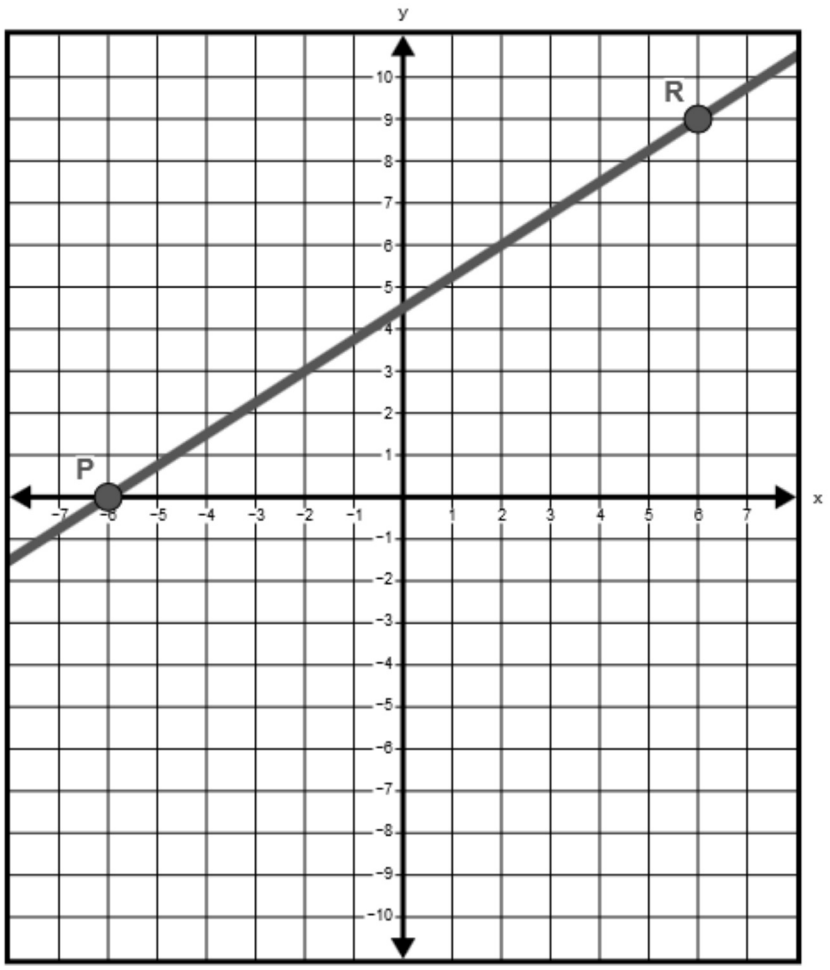
C. A dilation by a scale factor of $\frac{3}{4}$ centered at the origin.

D. A dilation by a scale factor of 2 centered at the origin.

12. **M43325**

The graph shows $\overleftrightarrow{PR}$ with point P located at $(-6, 0)$ and point R located at $(6, 9)$. Point Q is located on $\overline{PR}$ between points P and R so that the length of $\overline{QR}$ is twice the length of $\overline{PQ}$. What are the coordinates of point Q?

Select the place on the coordinate plane to plot the point.



13. M40991

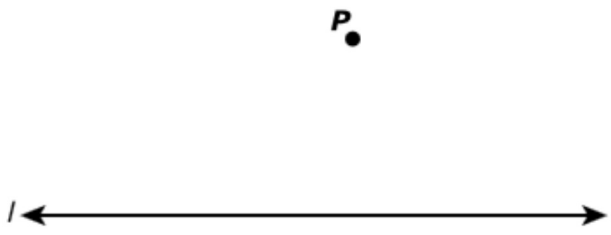
A cylindrical can containing vegetable oil has a diameter of 12 inches and a height of 15 inches. Find the volume of the can, in cubic inches, rounded to the nearest whole number.

Enter your answer in the box.

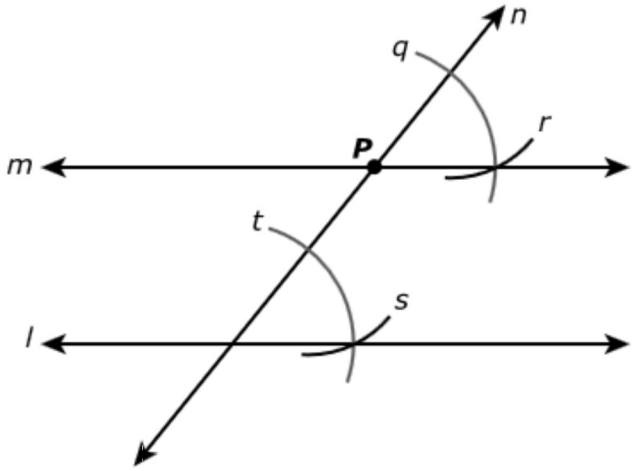
[ ] cubic inches

14. **2431-M41865**

Leon needs to construct a line parallel to line l that contains point P, using a compass and straightedge.



The figure shows Leon's construction.



Part A

Which answer choice contains the steps Leon took to perform his construction listed in the correct order?

A. Step 1: Draw arc s; draw arc r congruent to arc s.
Step 2: Draw line n.
Step 3: Draw arc t; draw arc q congruent to arc t.
Step 4: Draw line m.

B. Step 1: Draw line n.
Step 2: Draw arc t; draw arc q congruent to arc t.
Step 3: Draw arc s; draw arc r congruent to arc s.
Step 4: Draw line m.

C. Step 1: Draw line m.
Step 2: Draw line n.
Step 3: Draw arc t; draw arc q congruent to arc t
Step 4: Draw arc s; draw arc r congruent to arc s

D. Step1: Draw line m.
Step 2: Draw arc t; draw arc q congruent to arc t.
Step 3: Draw arc s; draw arc r congruent to arc s.
Step 4: Draw line n.

(continues on next page)

Part B

Next, Leon needs to construct a line that is perpendicular to line *l* and passes through point *P*. What should be his first step?

A. Place the compass on line *l* and draw an arc that intersects point *P* .

B. Place the compass point at point *P* and draw 2 arcs that intersect line *l* .

C. Place the compass point at point *P* and draw 2 arcs that intersect line *m* .

D. Place the compass point where arc *t* intersects line *l* and draw an arc that intersects line *l* .