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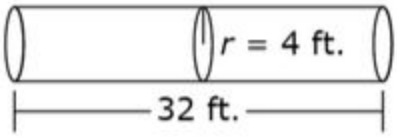
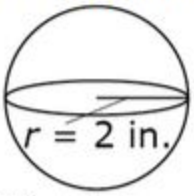
GEOMETRY: VOLUME A

1	**Example Stem 1:** This figure shows the dimensions of a tanker truck. The tank forms a cylinder with a length of 32 feet and radius of 4 feet.  What is the volume, in cubic feet, of the tank? Round your answer to the nearest hundredth.	1608.50
2	**Example Stem 2:** A spherical baseball has a radius of 2 inches, as shown in the diagram.  What is the volume, in cubic inches, of the baseball? Round your answer to the nearest hundredth.	33.51

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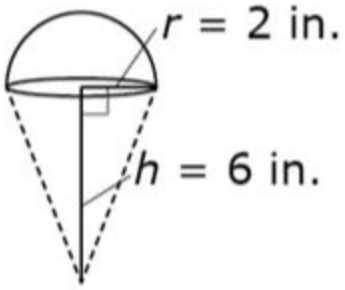
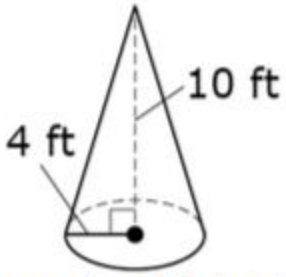
3	**Example Stem 3:** An ice cream cone has a height of 6 inches and a radius of 2 inches as shown. The ice cream completely fills the cone, as well as the half-sphere above the cone.  Which is closest to the total volume, in cubic inches, of the ice cream? A. $\frac{16}{3}\pi$ B. 8π C. $\frac{40}{3}\pi$ D. 20π	C
4	**Example Stem 1:** A cone with radius 4 feet and height 10 feet is shown.  Enter the volume of the cone, in cubic feet. Round your answer to the nearest hundredth.	167.47

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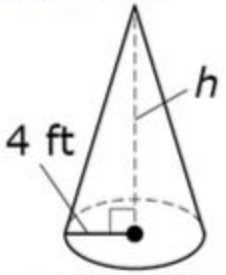
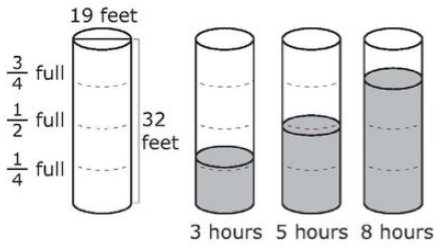
5	**Example Stem 2:** A cone with radius 4 feet is shown. Its approximate volume is 165 cubic feet.  Enter the height of the cone, in feet. Round your answer to the nearest hundredth.	9.85
6 CLAIM 4	**Example Item 4A.2b (Grade 8)** Primary Target 4A (Content Domain G), Secondary Target 1I (CCSS 8.G.C), Tertiary Target 1A (CCSS 7.RP.A), Quaternary Target 4B An empty tank in the shape of a cylinder is being filled with water. The tank is filled at a constant rate for a total of 10 hours. The figure shows the height of water in the tank at the given number of hours after filling started.  Enter the **percent** of the tank that is filled with water at 10 hours.	94% Height after 10 hours 30 Volume 8500
7 CLAIM 2	Grades 6-8, Claim 2 **Example Item 2A.4b (Grade 8):** Primary Target 2A (Content Domain G), Secondary Target 1I (CCSS 8.G.C), Tertiary Target 2D A sphere and the base of a cone have a radius of 3 inches. The volume of the sphere equals the volume of the cone. What is the height of the cone, in inches? Enter the height, in inches.	12
8 CLAIM 2	**Example Item 2A.4c (Grade 8):** Primary Target 2B (Content Domain G), Secondary Target 1F (CCSS 8.G.C), Tertiary Target 2D A right cylindrical tank has a height of 10 feet and a radius of 4 feet. Jane fills this tank with water at a rate of 8 cubic feet per minute. Using this rate, determine the number of minutes it will take Jane to completely fill the tank. Enter your answer, rounded to the nearest minute, in the response box.	63

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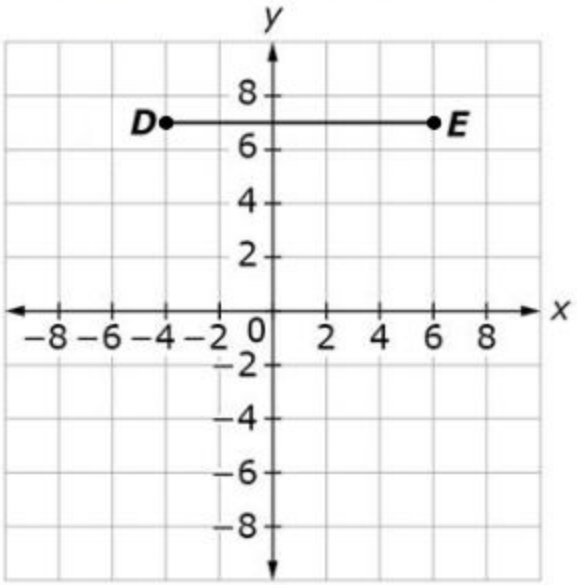
GEOMETRY: TRANSFORMATIONS A

1	**Example Stem 1:** Line segment *DE* is translated left 3 units and down 2 units to form line segment *D'E'*.  Enter the distance, in units, between point *D'* and point *E'*.	10
2	**Example Stem 2:** Line segment *FG* begins at (−2, 4) and ends at (−2, −3). The segment is translated left 3 units and up 2 units to form line segment *F'G'*. Enter the length, in units, of line segment *F'G'*.	7

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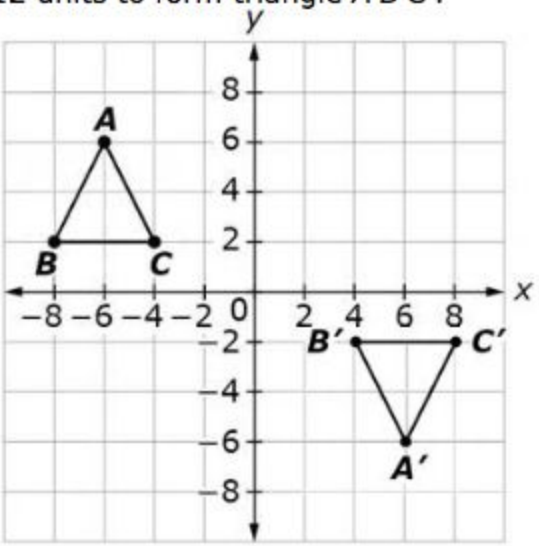
3	**Example Stem:** Triangle *ABC* is reflected across the *x*-axis and then translated right 12 units to form triangle *A′B′C′*.  Select True or False for each statement. **Statement** / **True** / **False** Angle *B* has the same measure as angle *B′*. / / Side *AC* is longer than side *A′C′*. / / Side *BC* is the same length as side *B′C′*. / /	T F T

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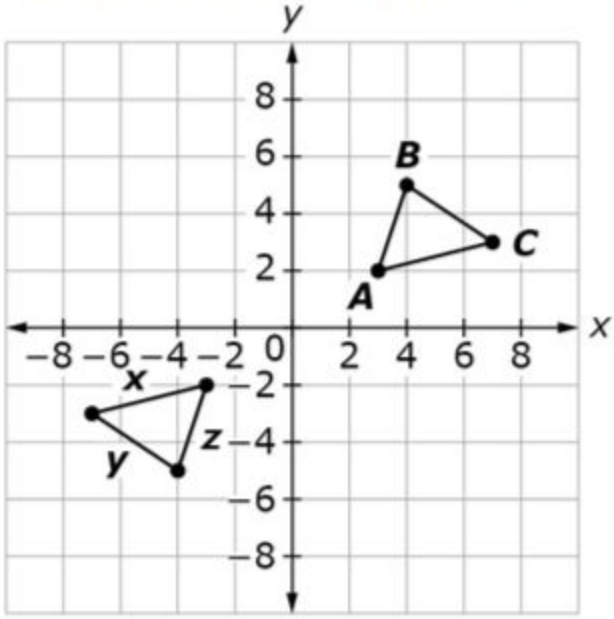
4	**Example Stem:** Triangle *ABC* was created by joining points *A*(3, 2), *B*(4, 5), and *C*(7, 3) with line segments. Triangle *ABC* is reflected over the *x*-axis and then reflected over the *y*-axis to form a triangle with side lengths *x*, *y*, and *z*.  Click in the table to show which side lengths are equal. 		x	y	z
---	---	---	---
AB			
AC			
BC					AB = z AC = x BC = y

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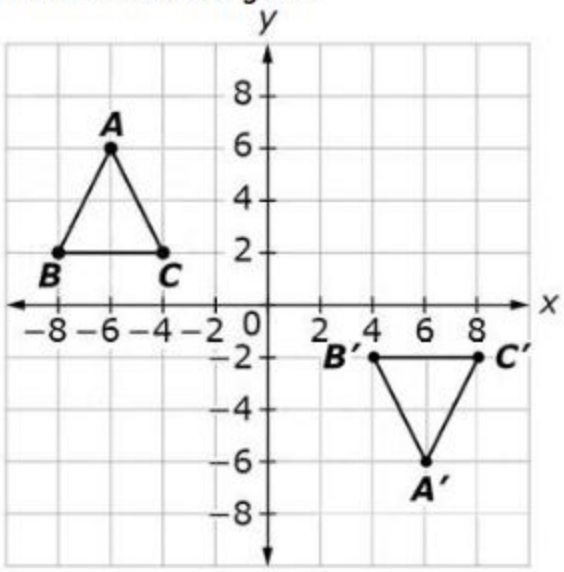
5	**Example Stem:** Consider this figure.  Consider the statements in the table shown. Select True or False for each statement about the sequences of transformations that can verify that triangle *ABC* is congruent to triangle *A′B′C′*.	T F T

Statement	True	False
Triangle *ABC* is translated 12 units to the right, followed by a reflection across the *x*–axis.		
Triangle *ABC* is a reflected across the *y*–axis, followed by a translation 12 units down.		
Triangle *ABC* is reflected across the *x*–axis, followed by a translation 12 units to the right.		

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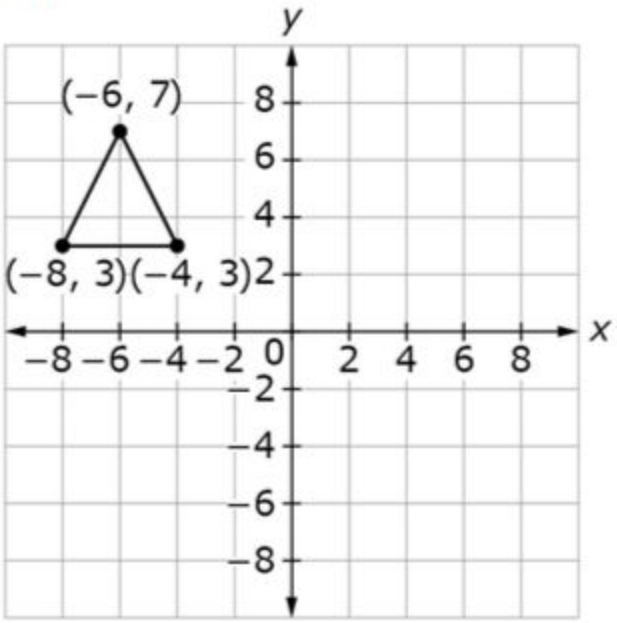
6	**Example Stem:** The figure on the coordinate plane is reflected across the *y*-axis.  Use the Connect Line tool to draw the resulting image of the figure.	Graph

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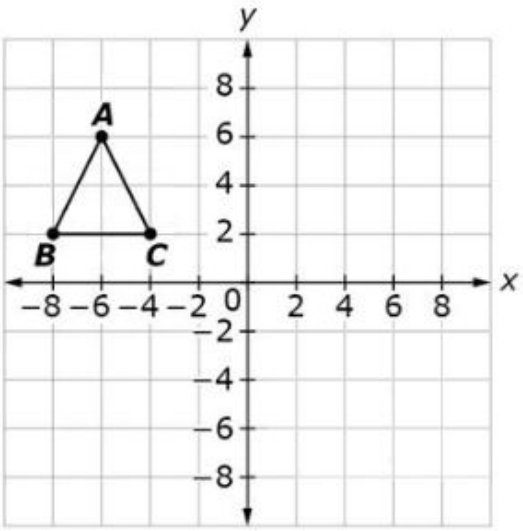
Example Stem: Triangle *ABC* is reflected across the *x*-axis, and dilated by a scale factor of 2, with the origin as the center of the dilation.

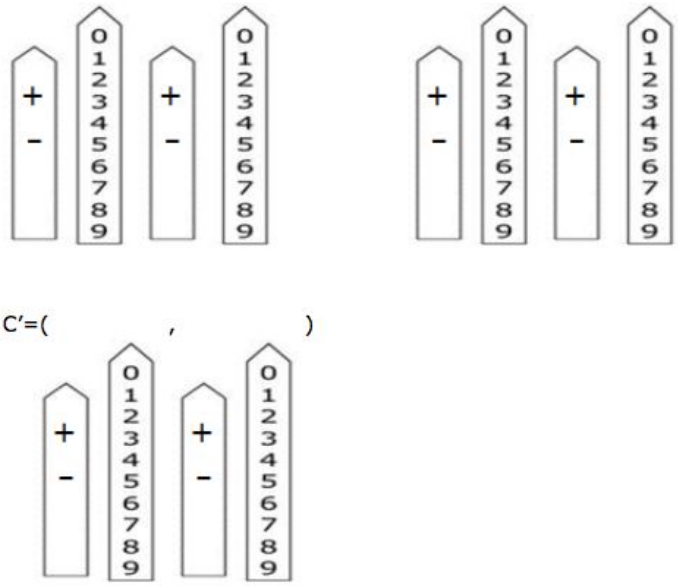


Click the numbers to give the coordinates of vertices *A'B'C'*.

Interaction: The student will click on numbers and positive/negative signs to give coordinates.

A'=(,) B'=(,)

C'=(,)



A'=(-12,-12)

B'=(-16,-4)

C'=(-8,-4)

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9 CLAIM 3	**Example Item 3D.1b (Grade 8)** Primary Target 3D (Content Domain G), Secondary Target 1G (CCSS 8.G.A), Tertiary Target 3G Select **all** of the following situations that show that Figure *P* is congruent to Figure *Q*. A. There is a translation that takes Figure *P* to Figure *Q*. B. There is a rotation that takes Figure *P* to Figure *Q*. C. There is a reflection that takes Figure *P* to Figure *Q*. D. There is a dilation that takes Figure *P* to Figure *Q*.	A, B and C

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