Redland Middle School

Summer Math Packet
Incoming Honors Geometry Students

Dear Student and Parent

The purpose of this packet is to provide a review of skills taught the previous school year and provide tasks related to the Common Core curriculum. Practicing with these materials will help your child retain this year's learning and prepare for next year's math course.

You can access the answer key online on our school website. You can use the key in the following ways.

- Have your child check the work after completing each assignment.
- Check your child's work after each assignment.
- Check the entire packet once it is completed.

Please have your child identify and correct mistakes. Your child **may** use a calculator and **must show all work**. Your child may complete assignments on separate paper. Please keep the paper(s) with the packet to turn in to next year's teacher.

The completed packet is due on the second Friday of the new school year. It will be recorded as a homework grade during the first marking period.

Thank you for your cooperation and assistance. Have a great summer!

Redland Middle School Math Department

You can find additional practice and support using the following link. As students access the website, they will select the page the matches the mathematics course they will be enrolling in for the upcoming school year (2019-2020). The course page will then provide links to several different units of study. Each unit will contain multiple online resources, such as video tutorials, games, and many more challenging tasks. Please make sure that your child is signed onto their Google account prior to logging into the website otherwise students may not be able to easily access some of the resources. The online tools can be found on the Redland Middle School website. Select Academics from the quick links list, select Mathematics, and then scroll down to Summer Online Math Resources. These resources can also be found on the following website:

https://sites.google.com/a/mcpsmd.net/mcps-math-online-resources/

Triangle ABC is reflected across the x-axis, resulting in triangle $A'B'C'$.

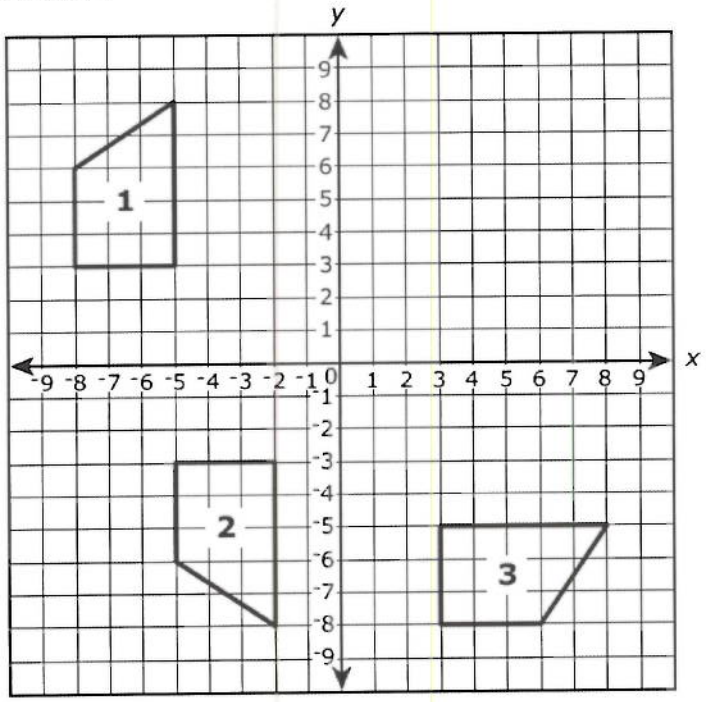
What are the coordinates of point B'?

Ⓐ $(-5, 1)$

Ⓑ $(-1, 5)$

Ⓒ $(1, -5)$

Ⓓ $(5, -1)$



Which statement describes a possible sequence of transformations that transforms figure 1 into figure 2?

Ⓐ a reflection across the x-axis, followed by a translation 2 units to the left

Ⓑ a reflection across the x-axis, followed by a translation 3 units to the right

Ⓒ a rotation 180° clockwise about the origin, followed by a translation 2 units to the left

Ⓓ a rotation 180° clockwise about the origin, followed by a translation 3 units to the right

Figure 3 can also be created by transforming figure 1 with a sequence of two transformations.

Which statement describes a possible sequence of transformations that transforms figure 1 into figure 3?

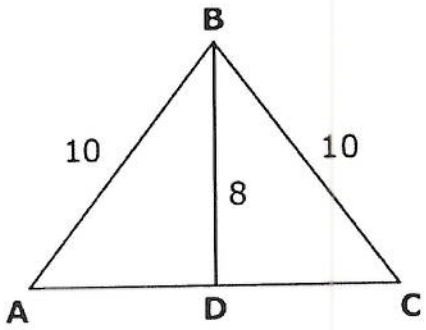
Ⓐ a rotation 180° clockwise about the origin, followed by a translation 2 units to the left

Ⓑ a rotation 90° clockwise about the origin, followed by a reflection across the x-axis

Ⓒ a rotation 180° clockwise about the origin, followed by a reflection across the y-axis

Ⓓ a rotation 90° clockwise about the origin, followed by a translation 3 units to the right

In $\triangle ABC$, $\overline{BD}$ is perpendicular to $\overline{AC}$. The dimensions are shown in centimeters.



What is the length, in centimeters, of $\overline{AC}$?

Filipo is building a rectangular sandbox for his younger brother. The length of the sandbox is 1 foot longer than twice the width of the sandbox. The perimeter of the sandbox is 29 feet.

Which equation could be used to determine w, the width, in feet, of the sandbox?

Ⓐ $w + w + 2 = 29$

Ⓑ $w + 2w + 1 = 29$

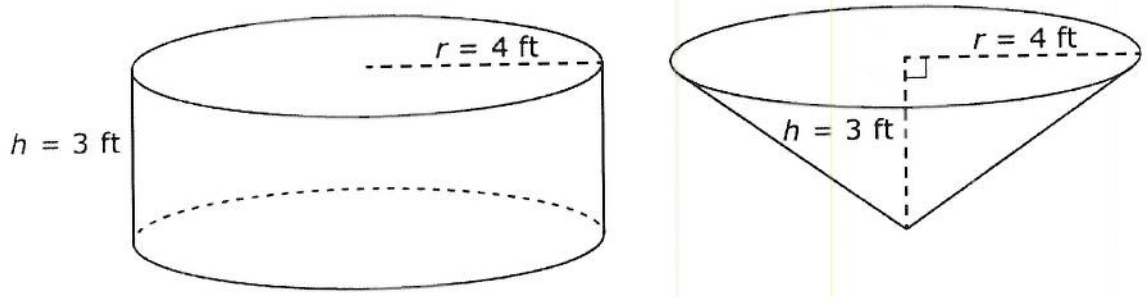
Ⓒ $2w + 2(w + 2) = 29$

Ⓓ $2w + 2(2w + 1) = 29$

Part B

What is the width, in feet, of the sandbox?

The figure shows a right-circular cylinder and a right-circular cone. The cylinder and the cone have the same base and the same height.



What is the volume, in cubic feet, of the cone?

Ⓐ 12π

Ⓑ 16π

Ⓒ 36π

Ⓓ 48π

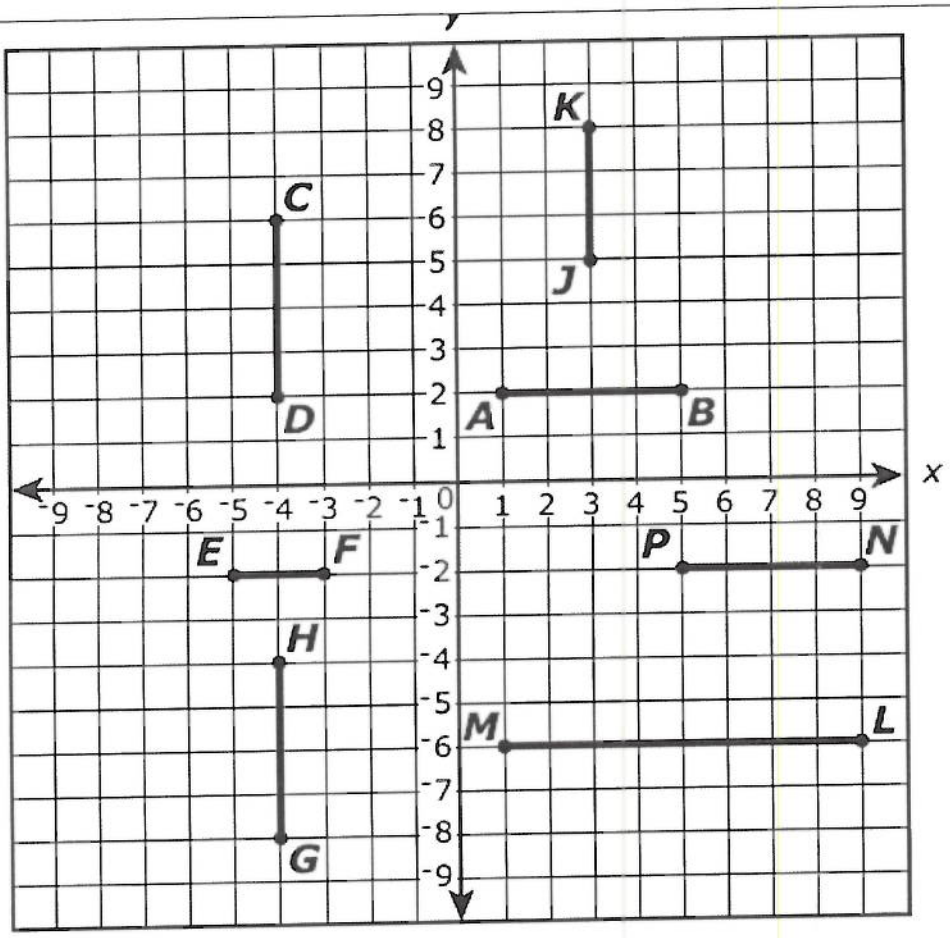
What is the ratio of the cone's volume to the cylinder's volume?

Ⓐ $\frac{1}{1}$

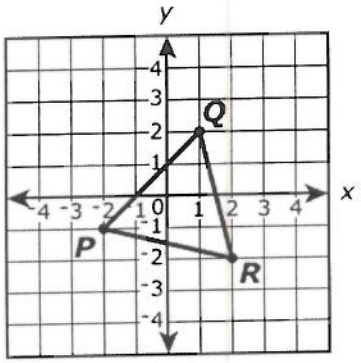
Ⓑ $\frac{1}{2}$

Ⓒ $\frac{1}{3}$

Ⓓ $\frac{1}{4}$



Which of these segments could be the image of segment after a sequence of reflections, rotations, and/or translations?



Triangle *PQR* is rotated 90° counterclockwise about the origin to form the image triangle *P'Q'R'* (not shown). Then triangle *P'Q'R'* is reflected across the *x*-axis to form triangle *P''Q''R''* (not shown).

What are the signs of the coordinates (x, y) of point P'?

Ⓐ Both x and y are positive.

Ⓑ x is negative and y is positive.

Ⓒ Both x and y are negative.

Ⓓ x is positive and y is negative.

Part B

What are the signs of the coordinates (x, y) of point Q''?

Ⓐ Both x and y are positive.

Ⓑ x is negative and y is positive.

Ⓒ Both x and y are negative.

Ⓓ x is positive and y is negative.

Lines m and n are parallel on a coordinate plane. Lines m and n are transformed by the same rotation, resulting in image lines s and t. Which statement describes the relationship between lines s and t?

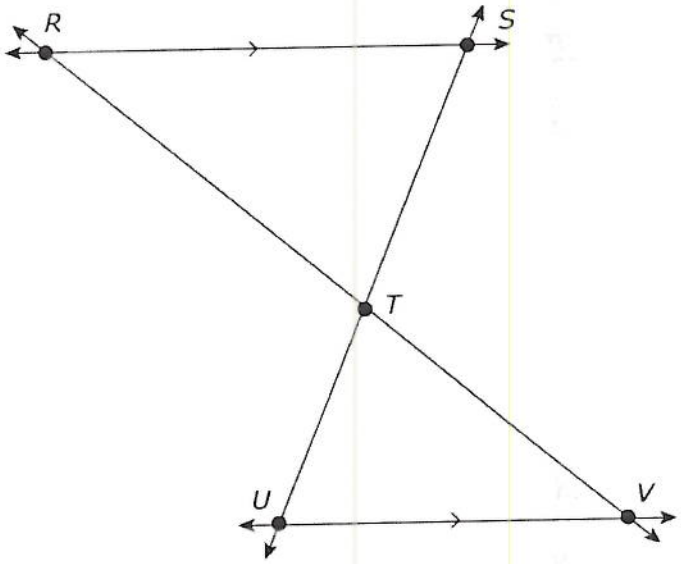
Ⓐ Lines s and t are parallel.

Ⓑ Lines s and t are perpendicular.

Ⓒ Lines s and t are intersecting but not perpendicular.

Ⓓ The relationship between lines s and t cannot be determined without knowing the angle of the rotation.

The figure shows line RS parallel to line UV. The lines are intersected by 2 transversals. All lines are in the same plane.

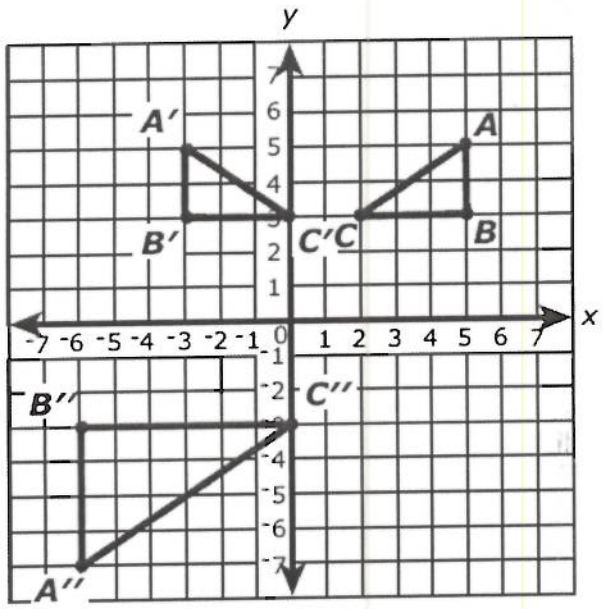


Explain why triangle RTS is similar to triangle VTU.

Given that $m\angle STV = 108°$, determine $m\angle SRT + m\angle TUV$. Show your work or explain your answer.

In the coordinate plane shown, triangle ABC is congruent to triangle $A'B'C'$.

Triangle $A'B'C'$ is similar to triangle $A''B''C''$.



Describe a single transformation that shows that triangle is congruent to triangle . Include all the necessary information to complete the transformation.

Describe a sequence of transformations that shows that triangle is similar to triangle . Include all the necessary information to complete each transformation.

ALGEBRA REVIEW

SOLVE the equation.

$-6(3-3a)-8(6a+5)=32$

$2(x+8)=-3(x+3)$

$6x-2x+8=x+5$

$4k+7(-4-2k)=-2(k-2)$

Solve by FACTORING.

$5v^2 - 30v + 40$

$v^2 - 7v + 10$

$4v^2 - 4v - 8$

$6v^2 + 66v + 60$

Solve each equation by taking square roots.

1) $k^2 = 76$

2) $k^2 = 16$

3) $x^2 = 21$

4) $a^2 = 4$

Solve each equation by completing the square.

1) $a^2 + 2a - 3 = 0$

2) $a^2 - 2a - 8 = 0$

3) $p^2 + 16p - 22 = 0$

4) $k^2 + 8k + 12 = 0$

Write the slope-intercept form of the equation of each line.

1) $3x - 2y = -16$

2) $13x - 11y = -12$

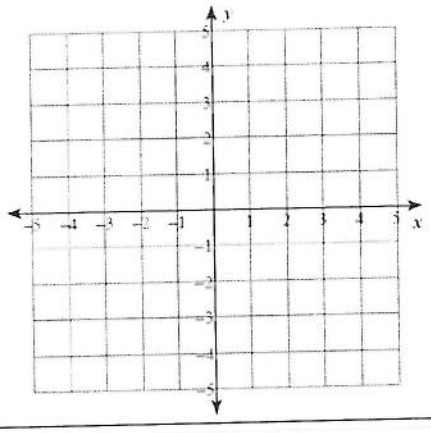
3) $9x - 7y = -7$

4) $x - 3y = 6$

Solve each system by graphing.

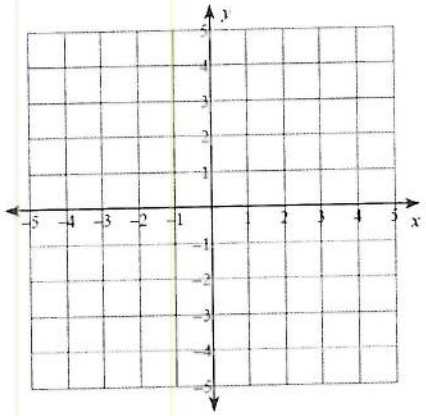
1) $y = -\frac{5}{3}x + 3$

$y = \frac{1}{3}x - 3$



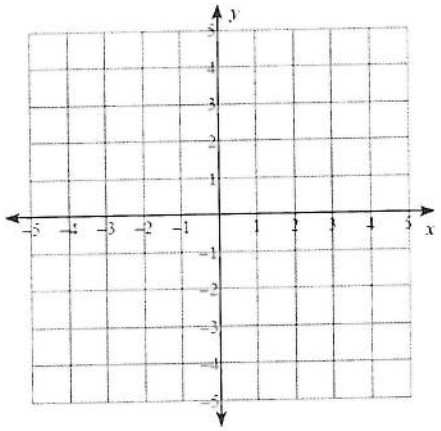
2) $y = 4x + 3$

$y = -x - 2$



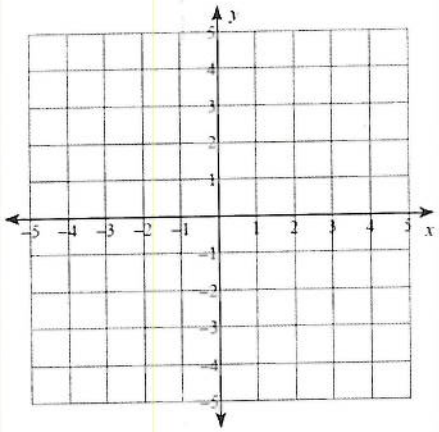
3) $y = -\frac{1}{2}x - 1$

$y = \frac{1}{4}x - 4$



4) $y = -1$

$y = -\frac{5}{2}x + 4$

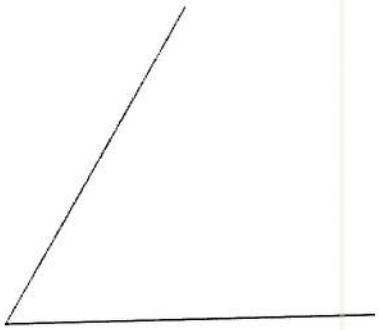


Construct the perpendicular bisector of each.

1)

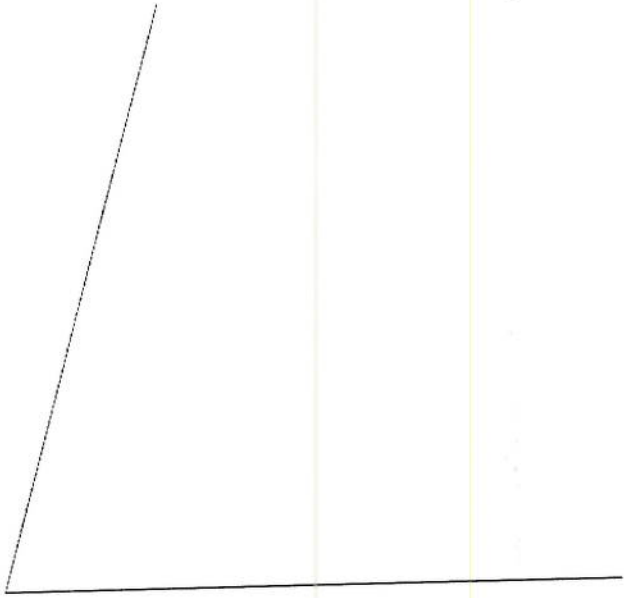
Construct a copy of each angle given.

1)



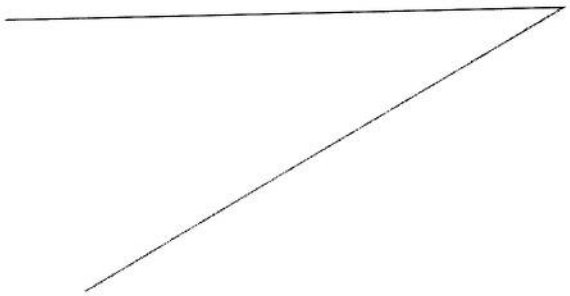
Construct the bisector of each angle.

2)

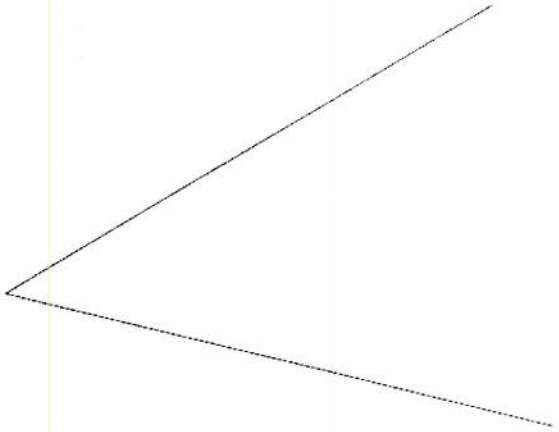


Construct the bisector of each angle.

1)

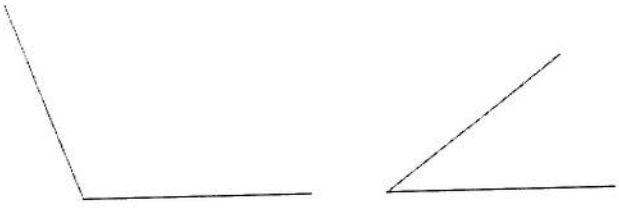


2)



Construct an angle whose measure is twice that of the angle given.

3)

Construct an angle whose measure is equal to the sum of the measures of the angles given.

4)