IRVINGTON PUBLIC SCHOOLS

GEOMETRY

SPRING BREAK REVIEW PACKAGE

APRIL 2016

Non-Calculator Section

1. A plane intersects a cylinder. Which two dimensional shape could be formed by the intersection? Select **all** that apply.

   ☐A. rectangle

   ☐B. square

   ☐C. trapezoid

   ☐D. rhombus

   ☐E. oval

   ☐F. circle

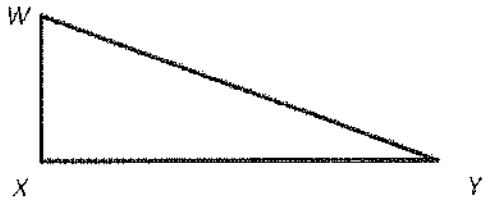
2. **Part A**
   The equation $x^2 + y^2 + 4x - 14y + 53 = 81$ describes a circle. Rewrite the equation so that the center and radius are evident.

   $(x +$ ☐ $)^2 + (y +$ ☐ $)^2 =$ ☐

   Part B
   In the equation $(x - 3)^2 + (y + 2)^2 = 25$, what is the length of the radius of the circle? Write your answer in the box.

   ☐

3. In right triangle WXY, $\angle X$ is a right angle and $m\angle W \neq m\angle Y$.



   Choose from the drop down menu to create a true statement.

   sin W [Choose ▾] cos Y

   > < =

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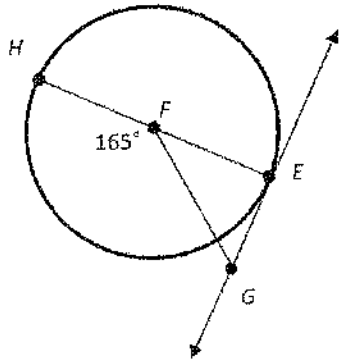
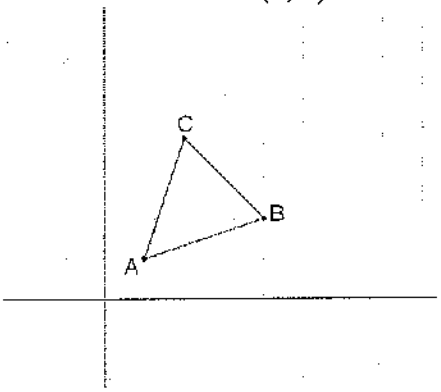
4. In circle F, $\overline{EG}$ is a tangent and $\overline{HE}$ is a diameter with $m\angle HFG = 165^\circ$ as shown.



What is $m\angle FGE$?
Write your answer in the box.

[ ] degrees

5. Triangle ABC, graphed in the xy-coordinate plane, is dilated by a scale factor of 1.5 with a center of dilation at (1, 1).



Select from the drop down menu to compare the lengths of the segments.

AB [Choose ▾] $A'B'$

- >
- <
- =

6. Janine made a small square table for next to her bed. The table measures 36 inches along its diagonal. How long is each side of the table? Write your answer in the box to nearest tenth of an inch.

[ ] inches

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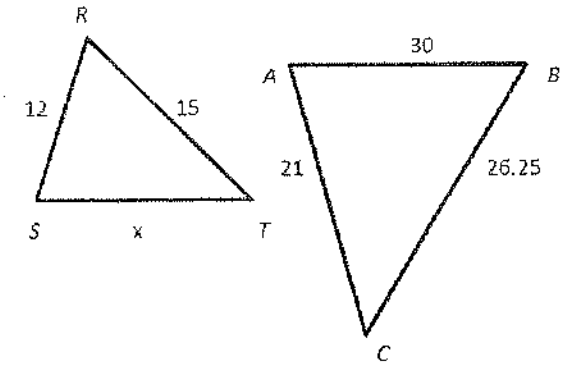
7. In the figure, $\triangle RST$ is similar to $\triangle CAB$.



Find the value of x. Write your answer in the box.

$x =$ ☐

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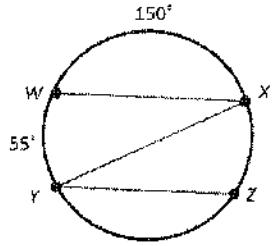
Calculator Section

8. In the figure below, $\overline{WX} \perp \overline{YZ}$, $m\overset{\frown}{WY} = 55°$ and $m\overset{\frown}{WX} = 150°$.



Part A

What is the measure of XZY?
Write your answer in the box.

☐ degrees

Part B

Which statements about the figure are true?
Select **all** that apply.

☐A. $m\,XWY = 205°$

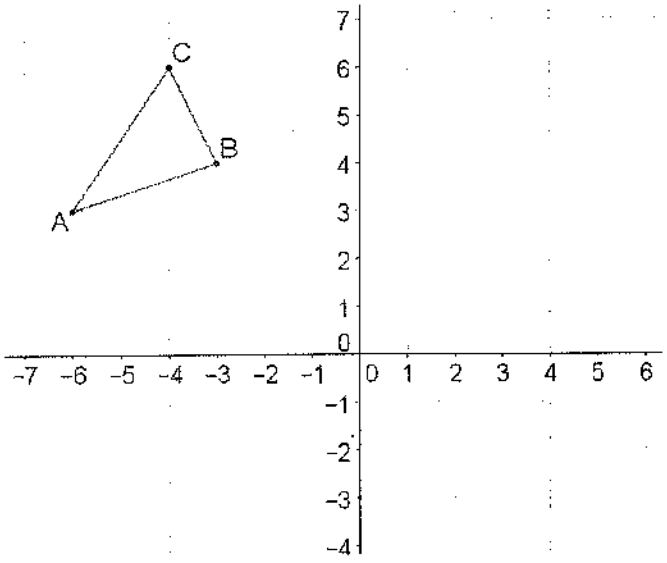
☐B. $\overline{WX}$ is a diameter of the circle

☐C. $m\angle WXY = m\angle XYZ$

☐D. $\overline{YZ}$ is a chord of the circle

☐E. if $\overline{WX}$ and $\overline{YZ}$ were extended they would never touch

9. Triangle ABC is graphed in the xy-coordinate plane. Graph the reflection of $\triangle ABC$ over the line $x = -1$.



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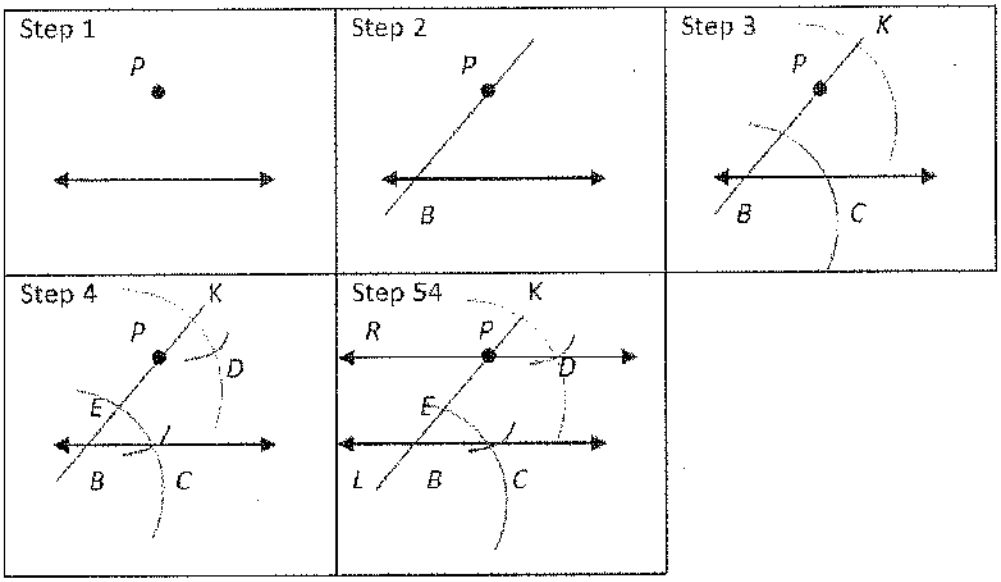
10. The steps below show a construction of a line parallel to a given line through point P.



Part A

Which statements are true based upon the construction? Select **all** that apply.

☐A. $BP = PD$

☐B. $BE = PK$

☐C. $EB = EP$

☐D. $PD = BC$

☐E. $KP = PD$

Part B

Select from the drop down menus to correctly complete the sentence.

The lines are parallel because [Choose ▾] has the same measure as [Choose ▾]

Choose ▾
m∠*RPK*
m∠*EBC*
m∠*LBE*
m∠*DPE*

Choose ▾
m∠*LBE*
m∠*EPD*
m∠*LBE*
m∠*KPD*

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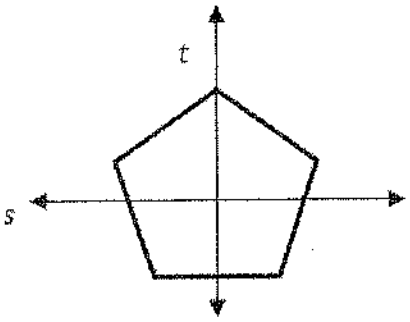
11. The figure shows two perpendicular lines intersecting at the exact center of a regular pentagon.



Which transformations will carry the pentagon onto itself?
Select **all** that apply.

☐A. reflection across line the line t

☐B. reflection across the line s

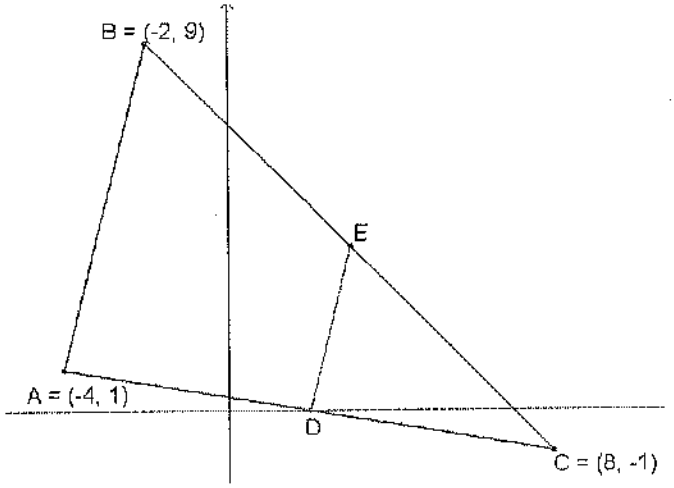
☐C. 90° clockwise rotation around the intersection of s and t

☐D. 90° counterclockwise rotation around the intersection of s and t

☐E. 180° rotation around the intersection of s and t

☐F. 360° rotation around the intersection of s and t

12. Triangle ABC is graphed on the xy-coordinate plane with $\overline{AB} \parallel \overline{DE}$ and $\frac{1}{2}AB = DE$.



What is the coordinate of point E?
Write your answer in the box.

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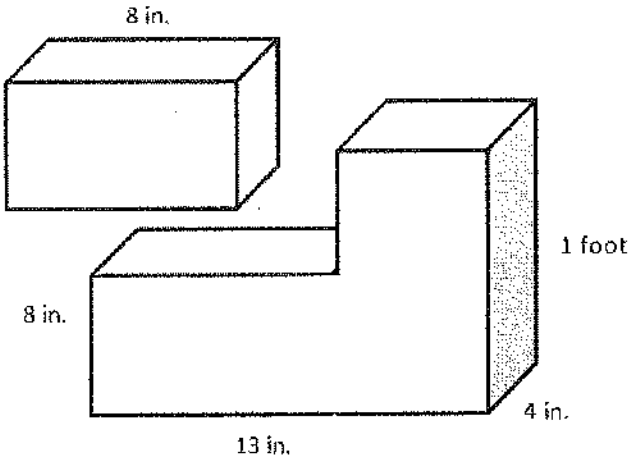
13. Cintia has a solid block of Styrofoam in the shape of a rectangular prism that is 13 inches wide, 4 inches deep and 1 foot high. She cuts off a piece in the shape of a rectangular prism that is 8 inches wide. She puts this piece of Styrofoam aside.



Part A

Cintia decides to paint ONLY the cut parts of the original figure red. How many square inches of Styrofoam will she paint? Write your answer in the box.

_____ square inches

Part B

Cintia takes the piece of cut Styrofoam and decides to shape it into a cylinder. She shaves off the least amount possible to form the cylinder. Select from the drop down menu to correctly complete the sentences.

The radius of the cylinder will be Choose inches.

- 2
- 4
- 8
- 12

The volume of the cylinder will be about Choose cubic inches.

- 100.5
- 401.9
- 1,607.7
- 3,617.3

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14. Triangle BKC is inscribed in circle O where $\overline{BC}$ is a diameter of the circle.

Part A

Classify each statement as sometimes, always, or never true. Check only one box in each row.

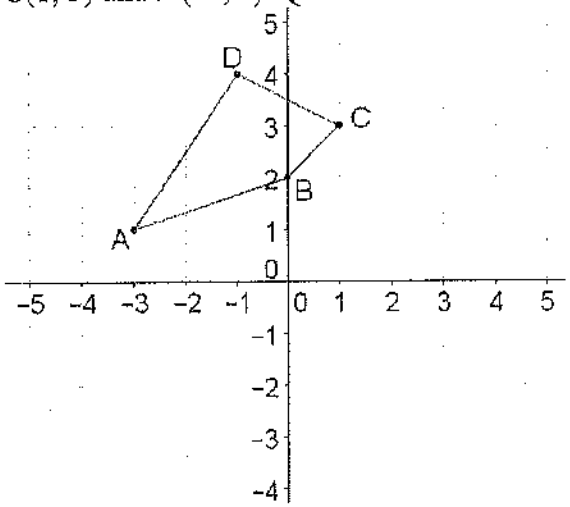
When is this statement true?	Sometimes	Always	Never
m $BKC = 180^\circ$			
$BC > KC$			
m$\angle C = 110^\circ$			

Part B

If m$\angle B = 55^\circ$, what is the measure of $\angle C$? Write your answer in the box.

☐ degrees

15. Quadrilateral $ABCD$ is graphed in the xy-coordiante plane as shown with $A(-3, 1)$ $B(0, 2)$ $C(1, 3)$ and $D(-1, 4)$. Quadrilateral $ABCD$ will be reflected over the line $y = -1$.



Part A

Which quadrants in the xy-coordiante plane will have at least one coordinate of $A'B'C'D'$? Circle **all** that apply.

I II III IV

Part B

What will be the coordinate of A'? Write your answer in the box.

☐

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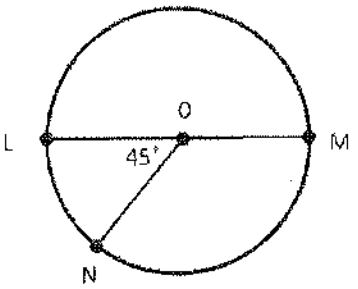
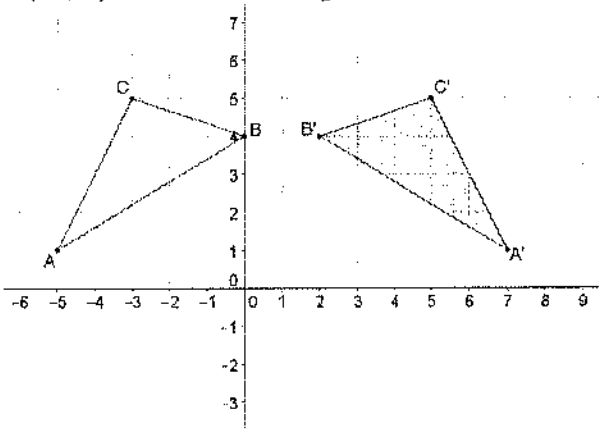
16. In Circle O, $\overline{LM}$ is a diameter and $\overline{NO}$ is a radius. The length of LM is 8.

What is the length of NM in radians?

- ○ A. 2π
- ○ B. 3π
- ○ C. 4π
- ○ D. 6π



17. Triangle ABC is graphed in the xy-coordiante plane with coordinates $A(-5, 1)$ $B(0, 4)$ and $C(-3, 5)$ as shown. Triangle ABC is transformed onto Triangle $A'B'C'$.



Part A

Which describe a transformation or series of transformations that will move triangle ABC onto triangle $A'B'C'$? Select **all** that apply.

- ☐A. reflection across x-axis
- ☐B. reflection across line the line $x = 1$
- ☐C. 90° clockwise rotation about the origin
- ☐D. reflection across the y-axis and translation right 2 units
- ☐E. 90° clockwise rotation about the origin and a reflection across $x = 1$

Part B

Suppose Triangle $A'B'C'$ is rotated 180° about the origin to form triangle $A''B''C''$. What will be the coordinate for the point C''? Write your answer in the box.

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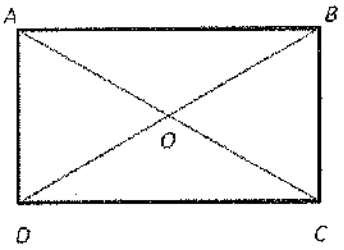
18. The partial proof proves that the diagonals of a rectangle bisect each other.

Given: rectangle $ABCD$ with diagonals intersecting at point O

Prove: AC bisects $\overline{BD}$ and $\overline{BD}$ bisects $\overline{AC}$

Choose from the drop down menus to correctly complete the proof.



Statements	Reasons
1. rectangle $ABCD$ with diagonals intersecting at point O	1. Given
2. $AB = CD$ and $AB \square CD$	2. definition of rectangle
3. $\angle ABO \cong \angle ODC$	3. alternate interior angles formed by parallel lines and a transversal are congruent
4. Choose: $\angle BAO \cong \angle AOB$ / $\angle BAO \cong \angle BDA$ / $\angle BAO \cong \angle OCD$ / $\angle BAO \cong \angle BCA$	4. alternate interior angles formed by parallel lines and a transversal are congruent
5. $\triangle BAO \cong \triangle DCO$	5. Choose: ASA / SAS / AAS / SSS
6. $DO = OB$	6. corresponding parts of congruent triangles are congruent
7. O is the midpoint of Choose: $\overline{AC}$ / $\overline{BD}$ / $\overline{AD}$ / $\overline{AB}$	7. definition of midpoint
8. AC bisects $\overline{BD}$	8. definition of bisector
9. Choose: $BO = OD$ / $AB = CD$ / $AD = BC$ / $AO = OC$	9. corresponding parts of congruent triangles are congruent
10. O is the midpoint of AC	10. definition of midpoint
11. BD bisects $\overline{AC}$	11. definition of bisector

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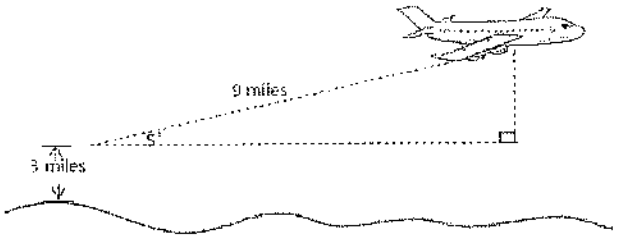
19. An airplane is traveling 3 miles above sea level when it starts to ascend at a 5° angle. The plane travels 9 miles during its ascent.



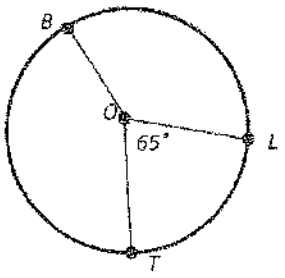
Select from the dropdown menu to correctly complete the sentence.

After its ascent, the plane is about [Choose ▼] miles above sea level.

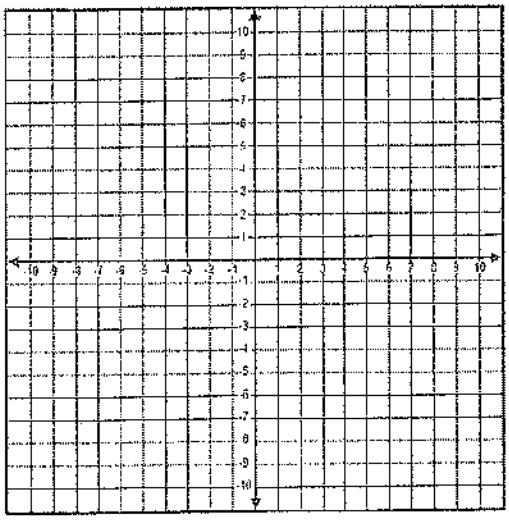
Choose
1
4
9
12
15

20. In circle O, $\overline{BO}$, $\overline{OL}$, and $\overline{OT}$ are radii with a length of 3 inches and $m\angle TOL = 65°$. What is the area of the sector of the circle created by $\angle TOL$?

- ○ A. 0.54π square inches
- ○ B. 1.08π square inches
- ○ C. 1.63π square inches
- ○ D. 3.25π square inches



21. Graph point A at $(-2, 1)$ and point B at $(4, 5)$ to form line segment $\overline{AB}$. Find point M such that the ratio of $AM : MB = 2:1$.



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