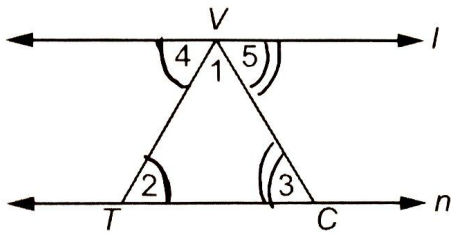
Item 1

Selected-Response: 1 point

In this figure, $l \| n$. Jessie listed the first two steps in a proof that shows $m\angle 1 + m\angle 2 + m\angle 3 = 180°$.



	Step	Justification
1	$\angle 2 \cong \angle 4$	?
2	$\angle 3 \cong \angle 5$	?

Which justification can Jessie give for Steps 1 and 2?

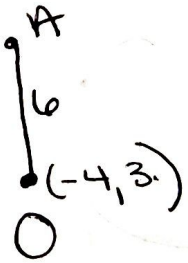
A. Alternate interior angles are congruent.
B. Corresponding angles are congruent.
C. Vertical angles are congruent.
D. Alternate exterior angles are congruent.

Item 2

Selected-Response: 1 point

The points $O(-4, 3)$, $A(x, y)$, and $B(x, 3)$ create a right triangle inside Circle O. Point A lies on the circle. OA is 6 centimeters.

What is the equation of Circle O?



A. $(x + 4)^2 + (y - 3)^2 = 6$
B. $(x - 3)^2 + (y - 3)^2 = 6$
C. $(x - 3)^2 + (y + 4)^2 = 36$
D. $(x + 4)^2 + (y - 3)^2 = 36$

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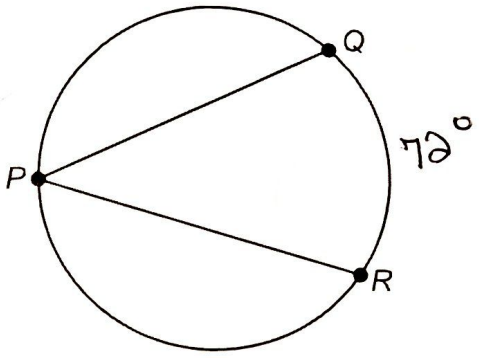
Item 3

Selected-Response: 1 point

In this circle, $m\overset{\frown}{QR} = 72°$.



72/2

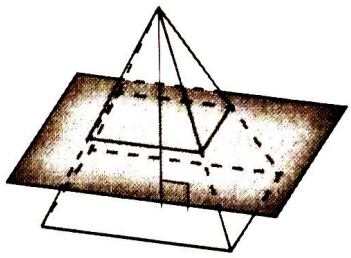
What is $m\angle QPR$?

A. 18°
B. 24°
C. 36°
D. 72°

Item 4

Selected-Response: 1 point

Look at the square pyramid.



If the plane in the figure is parallel to the base of the pyramid, which BEST describes the shape of the cross-section?

A. a rectangle
B. a pentagon
C. a triangle
D. a circle

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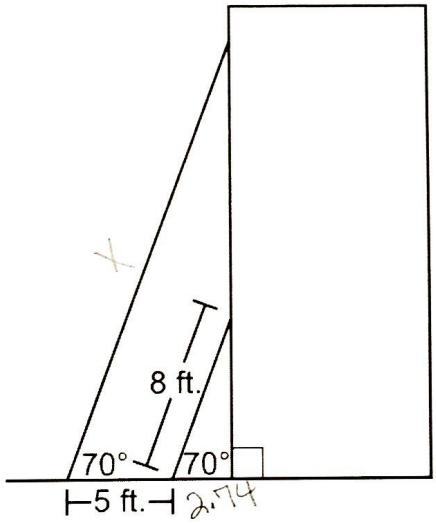
Item 5

Selected-Response: 1 point

This diagram shows two ladders leaning against a building. Each ladder is leaning at an angle of 70 degrees.

- **The length of the short ladder is 8 feet.**
- **The base of the long ladder is 5 feet farther from the base of the building than the base of the short ladder is.**



What is the length, to the nearest foot, of the long ladder?

sin 70° = 0.9397
cos 70° = 0.3420
tan 70° = 2.7475

A. 10
B. 13
C. 23
D. 26

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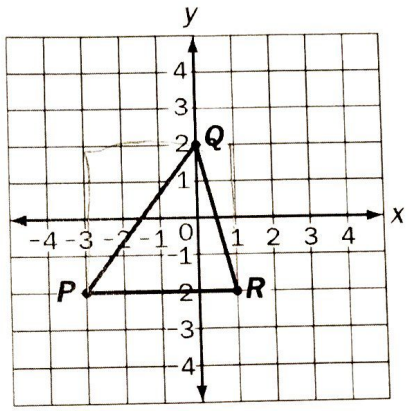
Item 6

Selected-Response: 1 point

Look at the coordinate grid below.



What is the perimeter, in units, of $\triangle PQR$?

A. $4 + \sqrt{42}$
B. 14
C. $9 + \sqrt{17}$
D. 17

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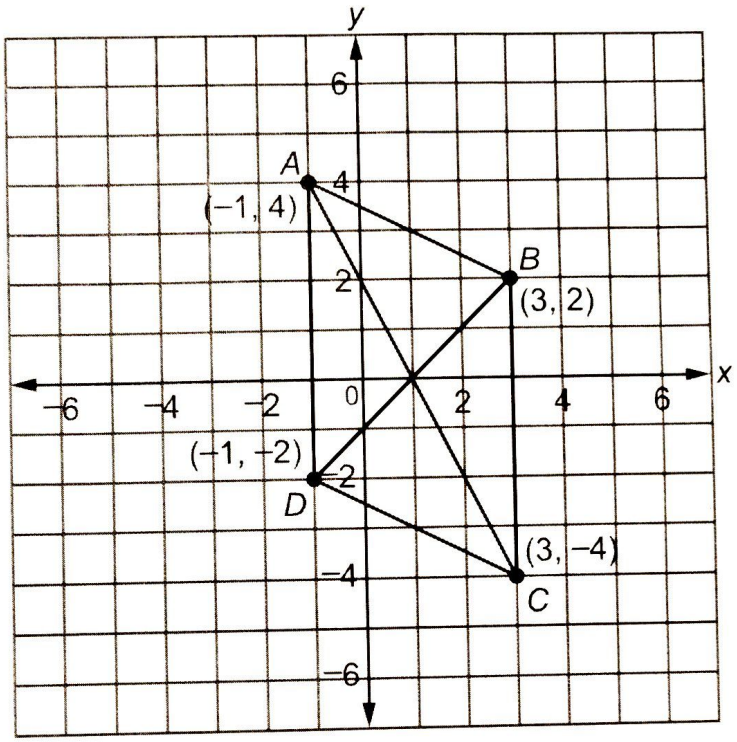
Item 7

Selected-Response: 1 point

Parallelogram *ABCD* has vertices as shown.



(1,0)

Which equation would be used in proving that the diagonals of parallelogram *ABCD* bisect each other?

A. $\sqrt{(3-1)^2+(2-0)^2} = \sqrt{(1-3)^2+(0+4)^2}$

B. $\sqrt{(3+1)^2+(2+0)^2} = \sqrt{(1+3)^2+(0-4)^2}$

C. $\sqrt{(-1-1)^2+(4-0)^2} = \sqrt{(1-3)^2+(0+4)^2}$

D. $\sqrt{(-1+1)^2+(4+0)^2} = \sqrt{(1+3)^2+(0-4)^2}$

Same question as #39 of our EOC Packet

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Item 8

Selected-Response: 1 point

Paul has a spinner with the colors red, green, blue, orange, and purple on it. He also has a number cube with sides labeled 1 through 6.

The probability of the arrow of the spinner stopping on green is $\frac{1}{5}$, and the probability of getting a number greater than 2 when tossing the number cube is $\frac{4}{6}$.

What is the probability of the arrow of the spinner stopping on green and getting a number greater than 2 when tossing the number cube?

P(Green and >2)

$\frac{1}{5} \cdot \frac{4}{6} = \frac{4}{30} = \frac{2}{15}$

A. $\frac{2}{15}$

B. $\frac{3}{10}$

C. $\frac{7}{10}$

D. $\frac{13}{15}$

Item 9

Multi-Part Technology-Enhanced: 2 points

Triangle *ABC* is similar but not congruent to triangle *DEF*.

Part A

Which series of transformations could map triangle *ABC* onto triangle *DEF*?

A. translation 4 units up, rotation 75° clockwise about the origin

B. reflection across the line $y = 2$, rotation 90° clockwise about the origin

C. translation 3 units left, dilation of scale factor 2 centered at the origin

D. reflection across the line $x = 1$, reflection across the line $y = 5$

Part B

Which equation must be true about triangle *ABC* and triangle *DEF*?

Testing your knowledge of similar triangles

A. $AB = DE$

B. $AC = EF$

C. $m\angle A + m\angle B = m\angle D + m\angle F$

D. $m\angle A + m\angle C = m\angle D + m\angle F$

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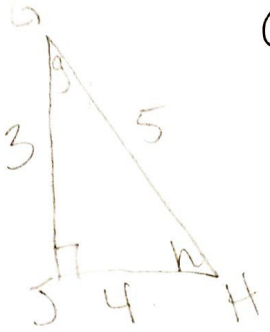
Item 10

Multi-Part Technology-Enhanced: 2 points

Triangle *GHJ* is a right triangle. Angle *G* has a measure of *g*°, angle *H* has a measure of *h*°, and angle *J* is a right angle.



Create a problem and test it out

Part A

Which equation must be true?

A. $\sin(h°) = \sin(g°)$

B. $\cos(g°) = \sin(h°)$ $\frac{3}{5} = \frac{3}{5}$

C. $\cos(h°) = \cos(g°)$

D. $\sin(h°) + \cos(h°) = \tan(h°)$

Part B

Given that $\tan(g°) = \frac{\sin(g°)}{\cos(g°)}$, which ratio must have a value equivalent to the tangent of *g*°? $\frac{\frac{4}{5}}{\frac{3}{5}}$

A. $\frac{\cos(h°)}{\sin(g°)}$

B. $\frac{\cos(h°)}{\sin(h°)}$ $\frac{\frac{4}{5}}{\frac{3}{5}}$

C. $\frac{\sin(h°)}{\cos(h°)}$

D. $\frac{\sin(h°)}{\cos(g°)}$

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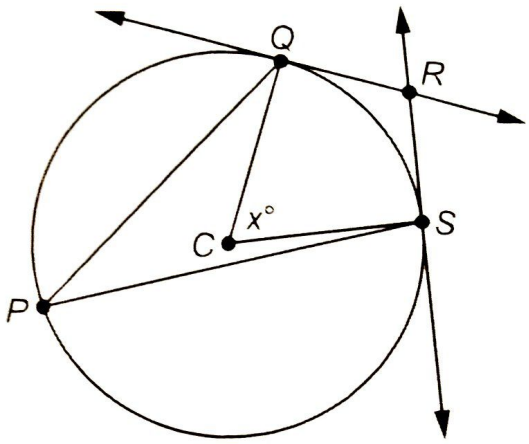
Item 11

Multi-Select Technology-Enhanced: 2 points

The figure shows circle C with tangent lines $\overleftrightarrow{QR}$ and $\overleftrightarrow{SR}$.



The measure of $\angle QCS$ is $x°$.

Select THREE statements that are true about the figure.

A. The measure of $\angle QPS$ is $(90 - x)°$.

B. The measure of $\angle QPS$ is $\frac{1}{2}x°$.

C. The measure of $\angle PSR$ is $90°$.

D. The measure of $\angle CQR$ is $90°$.

E. The measure of $\angle QRS$ is $(180 - x)°$.

F. The measure of $\angle QRS$ is $2x°$.

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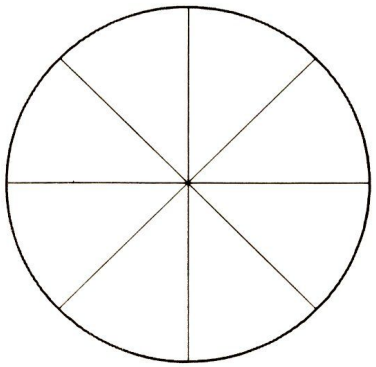
Item 12

Constructed-Response: 2 points

Billy is creating a circular garden divided into 8 equal sections. The diameter of the garden is 12 feet.



More than one way to answer

What is the area, in square feet, of one section of the garden? Use $\pi = 3.14$. Explain how you determined your answer. Write your answer in the space provided.

Points Awarded	Sample Response
2	14.13 square feet **AND** I can find the area of the entire circle and then divide by 8. This equals 4.5π. *Or other valid explanation.*
1	14.13 square feet *with no explanation or an incorrect explanation* **OR** *an explanation that contains a computation error but contains the correct process*
0	*Response is irrelevant, inappropriate, or not provided.*

OR

Area of Sector $= \frac{\pi(6^2)(45)}{360}$

$\frac{360}{8} = 45$

I can use the area of a sector formula. I can divide the diameter by two to get the radius. Then divide 360 by eight to find theta. Lastly, plug into the formula and it equals 14.13 square feet

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Item 13

Extended Constructed-Response: 4 points

Jane and Mark each build ramps to jump their remote-controlled cars.

Both ramps are right triangles when viewed from the side. The incline of Jane's ramp makes a 30° angle with the ground, and the length of the inclined ramp is 14 inches. The incline of Mark's ramp makes a 45° angle with the ground, and the length of the inclined ramp is 10 inches.

Part A **What is the horizontal length of the base of each ramp? Explain how you found your answers. Write your answers in the space provided.**

$$\begin{bmatrix} \sin 30° = 0.5000 & \sin 45° = 0.7071 \\ \cos 30° = 0.8660 & \cos 45° = 0.7071 \\ \tan 30° = 0.5774 & \tan 45° = 1.0000 \end{bmatrix}$$

Part B **Which car is launched from the highest point? Explain your reasoning. Write your answer in the space provided.**

Go to the next page to finish Item 13.

Points Awarded	Sample Response
4	Part A: Jane's ramp's horizontal length: 14cos(30) = 12.12 inches **AND** Mark's ramp's horizontal length: 10cos(45) = 7.1 inches **AND** Part B: Jane's car is launched from 14sin(30) = 7 inches. **AND** Mark's car is launched from 10sin(45) = 7.1 inches. So Mark's car is launched from a higher point. *Or other valid explanation.*
3	The student correctly answers three of the four parts.
2	The student correctly answers two of the four parts.
1	The student correctly answers one of the four parts.
0	*Response is irrelevant, inappropriate, or not provided.*

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