Geometry Daily Quiz
01142020

Question 1.

A town wants to fence in a rectangular section of a park. The table shows five possible plans for the dimensions of this fenced section. The changes in the width and the length of these plans follow a pattern.

Plan	Width (feet)	Length (feet)	Area (square feet)
1	16	34	544
2	18	32	576
3	20	30	600
4	22	28	616
5	24	26	624

If six additional plans are added to the table and follow the same pattern, which conclusion is not correct?

A The area of one of the additional plans exceeds 624 square feet.

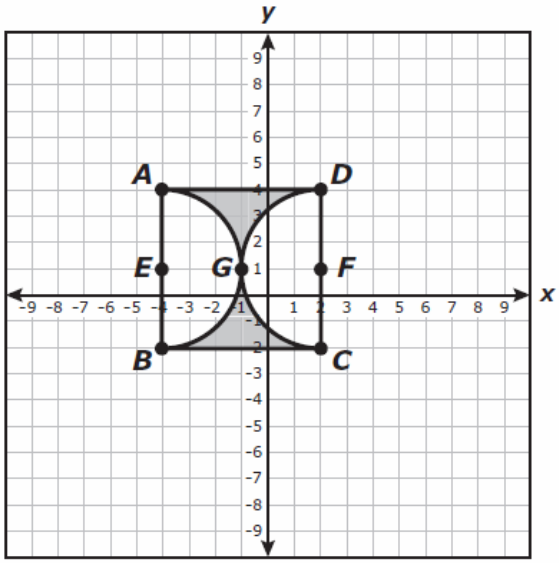
B The area of one of the additional plans is less than 544 square feet.

C The area in Plan 6 is the same as the area in Plan 5.

D The area in Plan 7 is less than the area in Plan 6.

Question 2

Points *A*, *B*, *C*, and *D* are the vertices of a square. Points *E* and *F* are the centers of two congruent semicircles that are tangent to each other at point *G*.



Which value is closest to the area of the shaded regions?

F 7.7 units^2

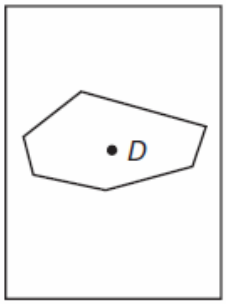
G 4.3 units^2

H 17.2 units^2

J 64.3 units^2

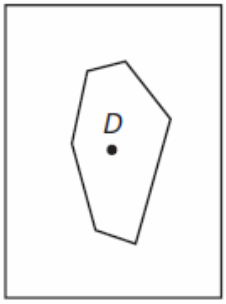
Question 3.

The diagram below represents one layout of a hexagonal swimming pool that contains a drain at point *D* in the center of a rectangular yard.

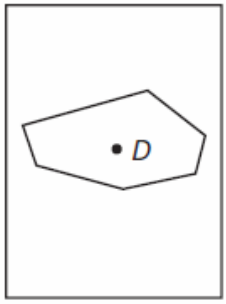


Other layouts are also being considered. Which layout is the result of a 90° counterclockwise rotation of the original layout using *D* as the center of rotation?

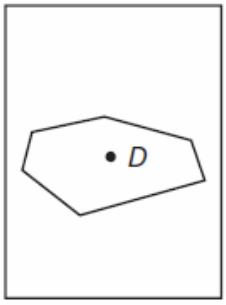
A



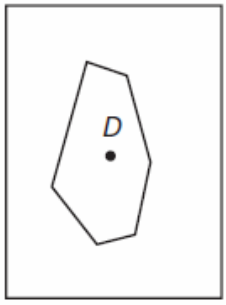
C



B

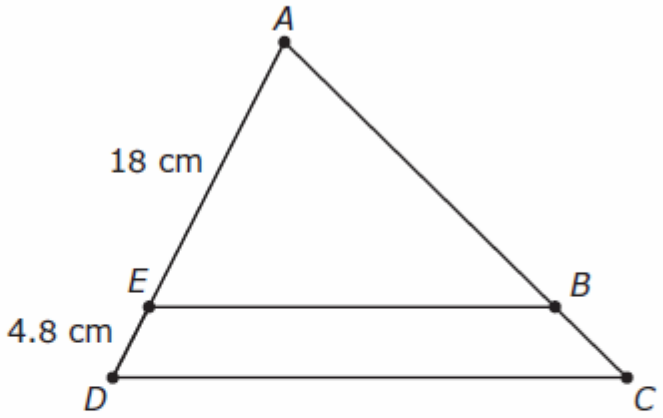


D



Question 4.

In ΔDAC shown below, $\overline{EB} \parallel \overline{DC}$.



If $AC = 28.5$ cm, what is the length of $\overline{AB}$?

F 22.5 cm

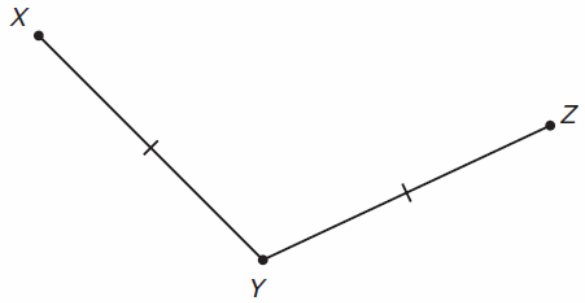
G 14.4 cm

H 36.1 cm

J 23.7 cm

Question 5.

The figure below was formed by joining 2 segments of equal length at common endpoint Y.



If points X, Y, and Z are non-collinear, which of the following statements regarding XZ must always be true?

A $XZ = XY$

B $XZ = 2(XY)$

C $XZ > 2(XY)$

D $XZ < 2(XY)$

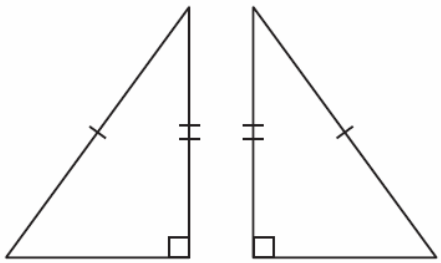
Question 6.

A geometry student concluded:

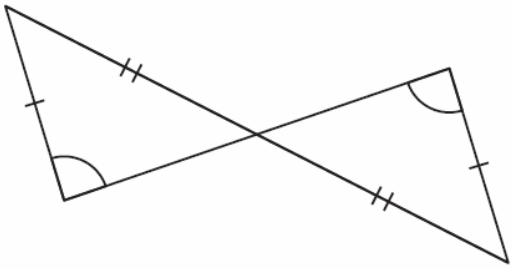
> If two sides and a non-included angle of one triangle are congruent to two sides and a non-included angle of another triangle, then the two triangles are congruent.

Which diagram can be used as a counterexample to the student's conclusion?

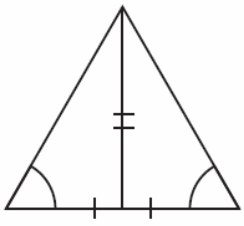
A



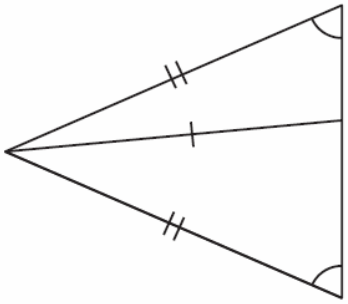
C



B



D



Question 7.

Which set of statements represents a valid deductive argument?

A All quadrilaterals have 4 angles.
All parallelograms have 4 angles.
All quadrilaterals are parallelograms.

B All parallelograms have diagonals that bisect each other.
All parallelograms have opposite sides that are parallel.
All polygons whose diagonals bisect each other have opposite sides that are parallel.

C All rectangles have 4 right angles.
All squares have 4 right angles.
All rectangles are squares.

D All parallelograms have 4 sides.
All polygons with 4 sides are quadrilaterals.
All parallelograms are quadrilaterals.

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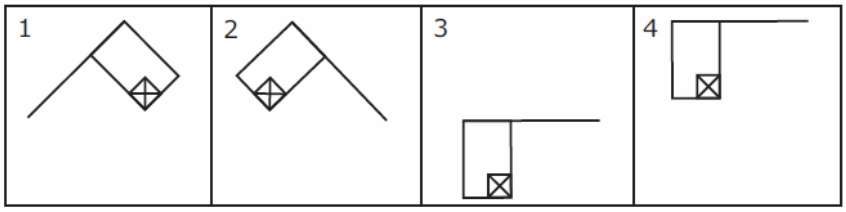
Question 8.

Jake took pictures of Ana's flag while she was practicing her routine for the football game, as shown below.



Which of the following best describes the movement of the flag from picture to picture?

A Reflection, rotation, translation

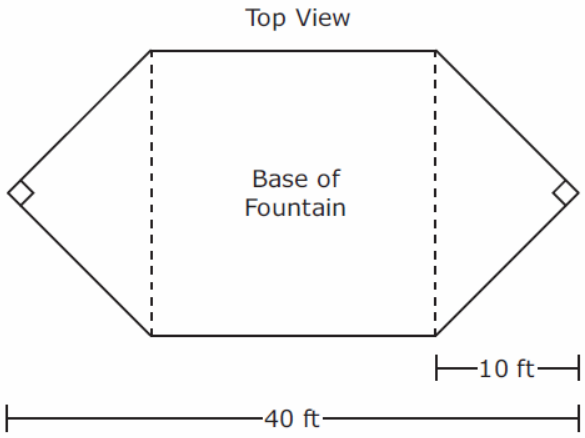
B Rotation, translation, translation

C Rotation, translation, dilation

D Reflection, translation, translation

Question 9.

When viewed from above, the base of a water fountain has the shape of a hexagon composed of a square and 2 congruent isosceles right triangles, as represented in the diagram below.



Which of the following measurements best represents the perimeter of the water fountain's base in feet?

A $(20 + 20\sqrt{2})$ ft

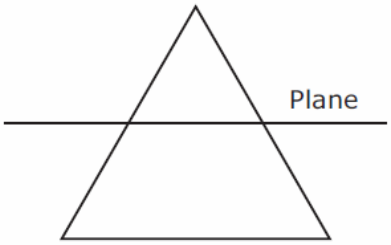
B $(20 + 40\sqrt{2})$ ft

C $(40 + 20\sqrt{2})$ ft

D $(40 + 40\sqrt{2})$ ft

Question 10.

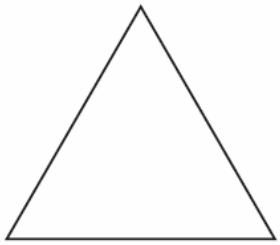
A side view of the intersection of a plane and a square pyramid is modeled below.



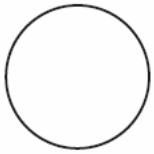
Which of the following best represents the shape formed by this intersection?

A

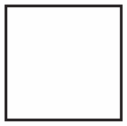
C



B

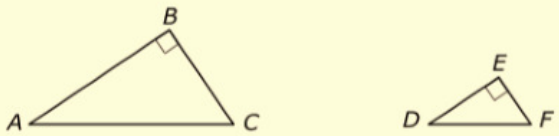


D



Bonus

Triangles *ABC* and *DEF* are right triangles, as shown. Triangle *ABC* is similar to triangle *DEF*.



Which ratios are equal to $\sin C$?

Select **all** that apply.

- ☐ A. $\frac{AB}{AC}$
- ☐ B. $\frac{AB}{BC}$
- ☐ C. $\frac{BC}{AC}$
- ☐ D. $\frac{DE}{DF}$
- ☐ E. $\frac{DE}{EF}$
- ☐ F. $\frac{EF}{DF}$

PARCC
Partnership for Assessment of Readiness for College and Careers

High School Mathematics Assessment Reference Sheet

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5280 feet
1 mile = 1760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilograms
1 kilogram = 2.2 pounds
1 ton = 2000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallons
1 liter = 1000 cubic centimeters

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d \ \ or \ \ C = 2\pi r$
General Prisms	$V = Bh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$
Cone	$V = \frac{1}{3}\pi r^2 h$
Pyramid	$V = \frac{1}{3}Bh$

Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Arithmetic Sequence	$a_n = a_1 + (n-1)d$
Geometric Sequence	$a_n = a_1 r^{n-1}$
Geometric Series	$S_n = \frac{a_1 - a_1 r^n}{1-r}$ where $r \neq 1$
Radians	1 radian $= \frac{180}{\pi}$ degrees
Degrees	1 degree $= \frac{\pi}{180}$ radians