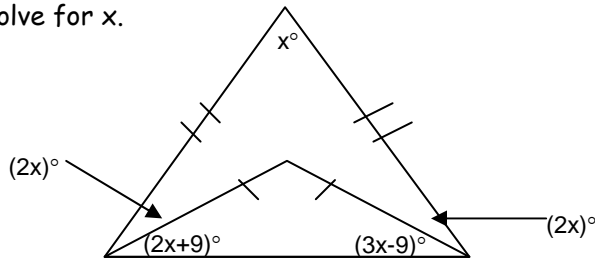


GEOMETRY INDIVIDUAL TEST – WANDO MATH TOURNAMENT

Note – NOTA (choice E) means none of the answers are correct

1. Solve for  $x$ .



- A. 18      B. 22      C. 16.2      D. 19.8      E. NOTA

2.  $A$ ,  $B$ , and  $C$  are collinear points such that  $B$  is between  $A$  and  $C$ .  $AB = \frac{5}{8}AC$  and  $AB = 15$ . Find  $BC$ .

- A. 9      B.  $75/8$       C. 24      D. 33      E. NOTA

3. Find the area of a regular octagon with a side length of 5 m.

- A. 100m      B. 13m      C.  $50 + 50\sqrt{2}$  m      D.  $100\sqrt{2}$       E. NOTA

4. The inverse of a conditional  $p \rightarrow q$  is  $\text{not } p \rightarrow \text{not } q$ . What is the inverse of the converse of  $p \rightarrow q$ ?

- A.  $q \rightarrow p$       B.  $\text{not } q \rightarrow \text{not } p$       C.  $p \rightarrow q$       D.  $\text{not } q \rightarrow p$       E. NOTA

5. Five times the measure of an angle is 48 more than the measure of its supplement. Find the measure of the angle.

- A. 142      B. 38      C. 180      D. 48      E. NOTA

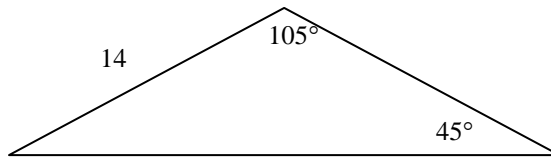
6. In spherical geometry, great circles are comparable to which of the following in Euclidean geometry?

- A. points      B. planes      C. segments      D. lines      E. NOTA

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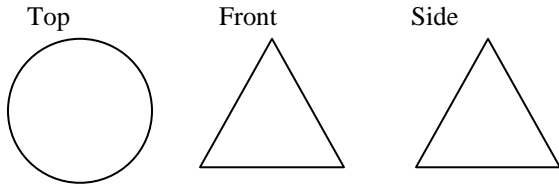
Note – NOTA (choice E) means none of the answers are correct

7. Solve for the area of the triangle.



- A. 196      B.  $7 + 7\sqrt{3}$       C.  $\frac{49 + 49\sqrt{3}}{2}$       D.  $\frac{7 + 7\sqrt{3}}{2}$       E. NOTA

8. The top, front, and side views of a figure are shown below. What is the figure?

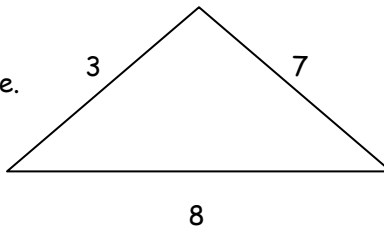


- A. sphere      B. cylinder      C. cone      D. rectangular prism      E. NOTA

9. What is the measure of a diagonal of a square if the area is  $36x^2$ ?

- A.  $6x$       B.  $6x\sqrt{2}$       C.  $12x$       D.  $6x^2$       E. NOTA

10. Solve for the area of the triangle.



- A.  $2\sqrt{3}$       B.  $9\sqrt{2}$       C. 16      D. 18      E. NOTA

11. If a circular cake is cut with 15 straight cuts from the center, how many pieces of cake will result?

- A. 14      B. 16      C. 28      D. 15      E. NOTA

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Note – NOTA (choice E) means none of the answers are correct

12. Skew lines are
- I. Intersecting
  - II. Coplanar
  - III. Noncoplanar

- A. I only      B. II only      C. I and III only      D. III only      E. NOTA

13. In  $\triangle DEF$ ,  $DE = 8$  and  $EF = 12$ . Which of the following measures cannot equal  $DF$ ?

- A. 20      A. 5      B. 8      C. 6      E. NOTA

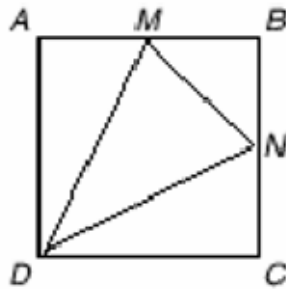
14. A plane is flying 500 mph at an altitude of 3 miles. A person first spots the plane at a  $45^\circ$  angle of elevation. A second sighting occurs at a  $30^\circ$  angle of elevation. How long does it take for the plane to travel from the first sighting to the second sighting?

- A. 7.39 sec.    B. 61.58 sec.      C. 15.8 sec.      D. 1.03 sec.      E. NOTA

15. The area of a rhombus is  $40 \text{ in}^2$ . The length of one diagonal is 10 inches. What is the length of a side of the rhombus?

- A. 4 inches    B.  $4\sqrt{3}$  inches      C.  $\sqrt{41}$  inches      D. 8 inches      E. NOTA

16. In the figure below,  $ABCD$  is a square with sides 2 inches long.  $M$  and  $N$  are the midpoints of sides  $\overline{AB}$  and  $\overline{BC}$ , respectively. What is the ratio of the area of triangle  $MND$  to the area of square  $ABCD$ ?

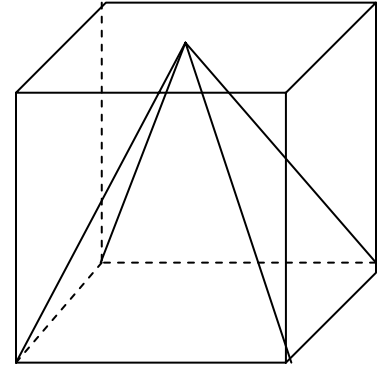


- A.  $\frac{1}{2}$       B.  $\frac{2}{3}$       C.  $\frac{3}{8}$       D.  $\frac{5}{8}$       E. NOTA

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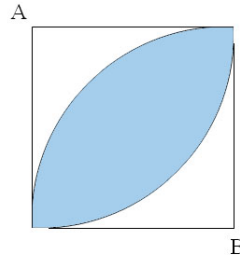
Note – NOTA (choice E) means none of the answers are correct

17. A square pyramid is inscribed in a cube. How many times greater is the volume of the cube than the volume of the pyramid?



- A.  $\frac{1}{2}$       B.  $\frac{1}{3}$       C. 2      D. 3      E. NOTA

18. Given a square of length 4 units and the arcs with centers at A and B, find the area of the shaded portion.



- A.  $(16 - 4\pi)$  units<sup>2</sup>      B.  $(4\pi - 8)$  units<sup>2</sup>      C.  $(8\pi - 16)$  units<sup>2</sup>      D.  $(8\pi - 32)$  units<sup>2</sup>

19. The planet Mercury rotates on its axis once every 59 days. To find the angular velocity of a point on the equator in degrees per hour, which of the following expressions should you use?

- A.  $\frac{360 \cdot 59}{24}$       B.  $\frac{59}{360 \cdot 24}$       C.  $\frac{360}{59 \cdot 24}$       D.  $\frac{24 \cdot 59}{360}$

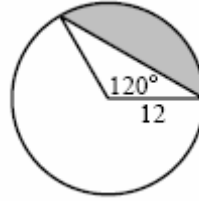
20. Suppose that a convex polygon has a diagonal that divides the polygon into two quadrilaterals. How can you classify the original polygon?

- A. an octagon      B. a heptagon      C. a hexagon      D. a pentagon

GEOMETRY INDIVIDUAL TEST – WANDO MATH TOURNAMENT

Note – NOTA (choice E) means none of the answers are correct

21. What is the area of the shaded region?



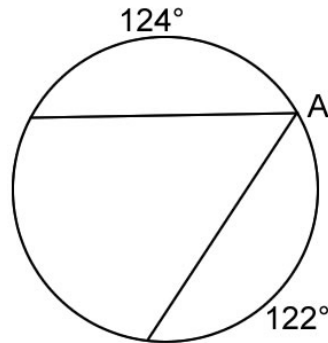
- A.  $144\pi - 36\sqrt{3}$       B.  $48\pi - 36\sqrt{3}$       C.  $96\pi - 36\sqrt{3}$       D.  $36\sqrt{3}$

22. The smaller of two similar, cylindrical barrels has a surface area of  $6200 \text{ cm}^2$ . The height of the larger barrel is  $1\frac{1}{2}$  times the height of the smaller barrel. Which expression gives the surface area of the larger barrel?

- A.  $6200 \cdot \frac{3}{2}$       B.  $6200 \cdot \frac{4}{9}$       C.  $6200 \cdot \frac{9}{4}$       D.  $\left(6200 \cdot \frac{3}{2}\right)^2$

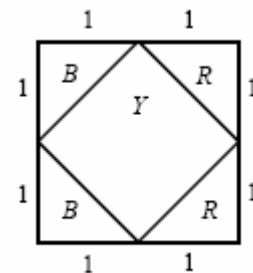
23. Find the measure of  $\angle A$ .

- A.  $57^\circ$       B.  $61^\circ$       C.  $66^\circ$   
D.  $114^\circ$       E. NOTA

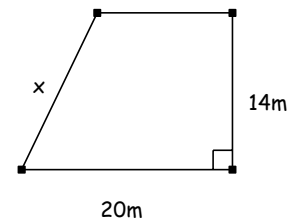


24. A square board is divided into five sections as shown. The sections are colored blue, red and yellow as indicated by the letters. If a dart hits the board randomly, what is the probability that the section it hits is red?

- A.  $\frac{1}{8}$       B.  $\frac{1}{4}$       C.  $\frac{2}{5}$       D.  $\frac{1}{2}$       E. NOTA



25. The area of the trapezoid is  $210\text{m}^2$ . Find the length of  $x$ .



- A. 10 m      B. 14 m      C.  $4\sqrt{21}$       D.  $2\sqrt{74}$       E. NOTA