Geometry test

1. In $\triangle ABC$, if $\angle A = 35°$ and $\angle B = 45°$, what is the degree of $\angle C$?

   (A) 35°   (B) 45°   (C) 110°   (D) 100°   (E) None of the above

2. If one of the angles of a parallelogram is $45°$, which of the following is a possible degree of another angle in the parallelogram?

   (A) 10°   (B) 30°   (C) 85°   (D) 135°   (E) None of the above

3. In $\triangle ABC$, if the degree of an exterior angle of $\angle A$ is $75°$, what is the degree of $\angle B + \angle C$?

   (A) 105°   (B) 80°   (C) 130°   (D) 75°   (E) None of the above

4. How much water can be filled in a cubic tank with a side length of 10cm?

   (A) 800cm^3 (B) 2000cm^3 (C) 2500cm^3 (D) 8000cm^3 (E) None of the above

5. A wheel with radius r does two complete revolutions every second. How far will the wheel travel in 10 seconds, assuming it moves straight ahead?

   (A) $4\pi r$ (B) $18\pi r$ (C) $32\pi r$ (D) $40\pi r$ (E) None of the above

6. What is the length of the diagonal of a rectangle with a height of 6 and a width of 8?

   (A) 10   (B) 12   (C) 8   (D) 14   (E) 20

7. Calculate the area of the following figure, assuming the adjacent sides are perpendicular.
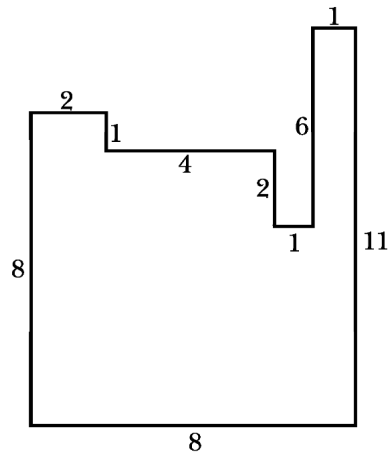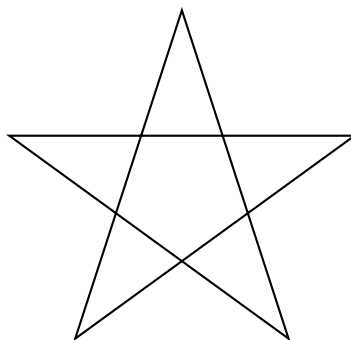

(A) 45   (B) 50   (C) 55   (D) 60   (E) None of the above

8. A circle centered at $(0,0)$ has a radius of 5, and another circle centered at $(3,3)$ has a radius of 4. How many points do these two circles intersect at?

(A) 0   (B) 1   (C) 2   (D) 4   (E) ∞

9. What is the degree of each angle at the five points of a regular pentagram?


(A) 30°   (B) 36°   (C) 40°   (D) 45°   (E) None of the above

10. What is the angle between the two hands of a clock at 12:45?

   (A) 60°   (B) 75°   (C) 80°   (D) 90°   (E) None of the above

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11. A right triangle has a hypotenuse of length h. The vertex of the right angle lies on a circle of radius r centered at the origin. The triangle is positioned such that the other two vertices lie on the coordinate axes, as indicated in the diagram. What is the ratio $\dfrac{h}{r}$?
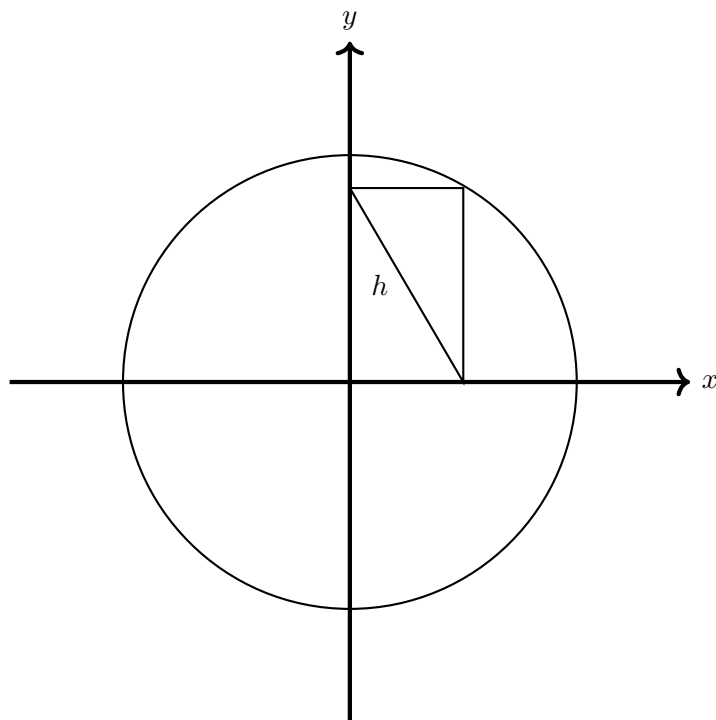
   (A) 1   (B) $\dfrac{2}{3}$ (C) $\dfrac{3}{4}$ (D) 2
   (E) Insufficient information to determine

3

12. A circle C is centered at $(3, -1)$ and contains $(2, -5)$. What is the radius of C?

(A) $\sqrt{17}$ (B) 17   (C) $\sqrt{19}$ (D) 21   (E) None of the above

13. What is the shape of the geometric figure with vertices at $(0,0), (b,c), (a+b,c), (a,0)$?

(A) Square (B) Rectangle (C) Parallelogram (D) Trapezoid (E) None of the above

14. A quadrilateral is formed by the points $A = (-8, -3), B = (-3, 4), C = (3, 3), D = (4, -5)$. Which of the following best describes it?

(A) Square (B) Trapezoid (C) Parallelogram (D) Rectangle (E) None of the above

15. The sides of a triangle are in the ratio 5 : 12 : 14. Which of the following words best describes the triangle?

(A) Right   (B) Obtuse   (C) Acute   (D) Impossible
(E) None of the above

16. Which of the following shapes has the largest area if they all have the same perimeter?

(A) Circle   (B) Equilateral triangle   (C) Square   (D) Rectangle   (E) Rhombus
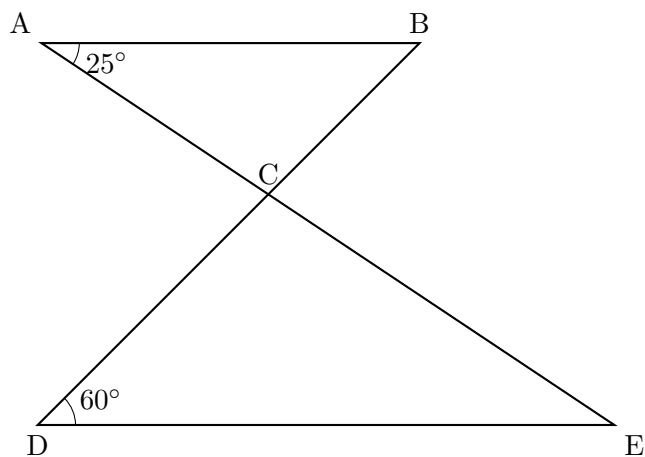
17. What is the length of the shortest path from the North Pole to the South Pole on a sphere with a radius of 5?

(A) 8   (B) 5π (C) 10π (D) 15   (E) None of the above

18. Calculate the area of the triangle with side lengths $3, 5, 6$.

   (A) 28   (B) $2\sqrt{14}$ (C) 34   (D) 36   (E) None of the above

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19. Calculate the degree of $\angle BCE$ in the following diagram, where AB is parallel to DE.

   (A) $105°$ (B) $90°$ (C) $85°$ (D) $75°$ (E) None of the above

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20. What is the area of a square that can be inscribed in a circle with a radius of 8?

   (A) 25   (B) 64   (C) 81   (D) 128   (E) Insufficient information to determine