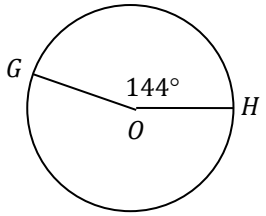
HOMEWORK EXERCISES (TIME: 10 MINUTES)

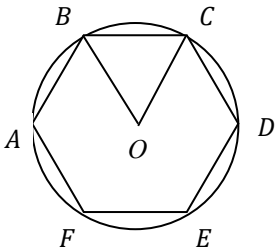


21. In the circle centered at point G as shown above, find the measure of the minor arc GH, in terms of π given that the central angle measures $144°$ and the length of $\overline{OH} = 15$ cm.

(A) π
(B) $\frac{3\pi}{2}$
(C) 6π
(D) 12π
(E) 15π

22. A and B are two points that lie on a circle centered at point C. If the circumference of the circle is 9π feet and $\angle ACB = 54°$, what is the area of the sector defined by $\angle ACB$ to the nearest tenth of a square foot?

(A) 3.0
(B) 9.0
(C) 9.5
(D) 12.0
(E) 12.5

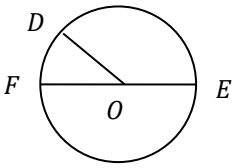


23. Regular hexagon $ABCDEF$ is inscribed in a circle with center at point O. If the perimeter of the hexagon is 42 cm, what is the length of minor arc BC, in terms of π?

(A) $\frac{7\pi}{6}$
(B) $\frac{7\pi}{3}$
(C) $\frac{8\pi}{3}$
(D) $\frac{14\pi}{3}$
(E) 14π

24. A minor arc of a given circle is subtended by a central angle that measures $30°$. The area of this circle is 36π square feet. What is the length, in terms of π, of this subtended arc?

(A) π
(B) $\frac{3\pi}{2}$
(C) 3π
(D) 6π
(E) 9π

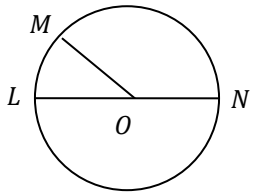


25. In circle O, shown above, the measure of $\angle DOE = 120°$. If the circumference of the circle is 20π inches, what is the area, to the nearest square foot, of the sector defined by $\angle DOE$?

(A) 21
(B) 63
(C) 90
(D) 105
(E) 419

26. In a given circle centered at P, points Q, R, and S lie on the circle. If the measure of $\angle QPR = 270°$ and the length of diameter $\overline{QS} = 36$ centimeters, what is the area, in terms of π, of the sector containing $\angle QPR$?

(A) 18π
(B) 36π
(C) 81π
(D) 144π
(E) 243π

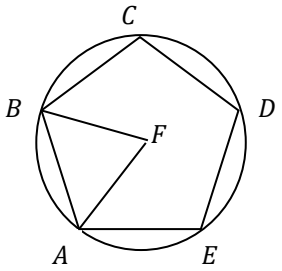


27. In the circle centered at point O as shown above, what is the measure of the major arc MLN, in terms of π, given that $\angle MON = 108°$ and the area of circle O is 100π.

(A) π
(B) 7π
(C) 14π
(D) 18π
(E) 36π

28. A and B are two points that lie on a circle centered at point C. If the circumference of the circle is 9π feet and $\angle ACB = 45°$, what is the area of the sector defined by $\angle ACB$ to the nearest square foot?

(A) 4
(B) 5
(C) 6
(D) 7
(E) 8

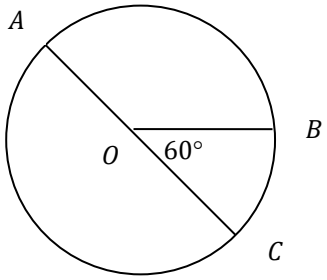


29. Regular pentagon $ABCDE$ is inscribed in a circle with center at point F. If the circumference of the circle is 40π, what is the area of the sector defined by $\angle AFB$?

(A) 40π
(B) 80π
(C) 100π
(D) 200π
(E) 400π

30. In a circle with an area of 6.25π square feet, find the length of minor arc, to the nearest tenth of a foot, which contains a central angle of 80 degrees.

(A) 3.5
(B) 4.0
(C) 4.5
(D) 5.0
(E) 5.5



31. In circle O, shown above, the measure of $\angle BOC = 60°$. If the circumference of the circle is 8π inches, what is the area, in terms of π, of the sector defined by $\angle AOB$?

(A) $\frac{4\pi}{3}$
(B) $\frac{8\pi}{3}$
(C) $\frac{16\pi}{3}$
(D) 8π
(E) 16π

32. In a circle whose area is 625π square inches, find the length, in terms of π, of an arc that is subtended by a $72°$ central angle.

(A) 5π
(B) 10π
(C) 15π
(D) 20π
(E) 25π