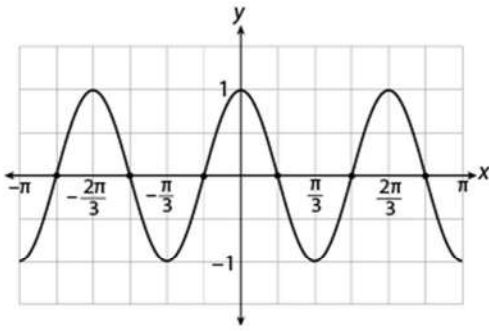


Advanced Geometry, Trigonometry Notes

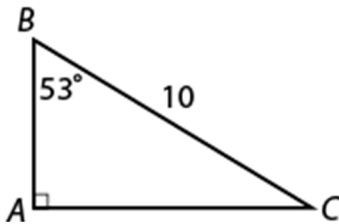
1.



The graph of $g(x) = \cos(3x)$ is shown above. Which of the following lists represents the values of x for which $g(x) = 0$?

- (A) $-180^\circ, -120^\circ, -60^\circ, 60^\circ, 120^\circ, 180^\circ$
- (B) $-165^\circ, -105^\circ, -45^\circ, 45^\circ, 105^\circ, 165^\circ$
- (C) $-150^\circ, -90^\circ, -30^\circ, 30^\circ, 90^\circ, 120^\circ$
- (D) $-120^\circ, -80^\circ, -40^\circ, 40^\circ, 80^\circ, 120^\circ$

2.



Based on the figure above, what is the approximate length of side AB ?

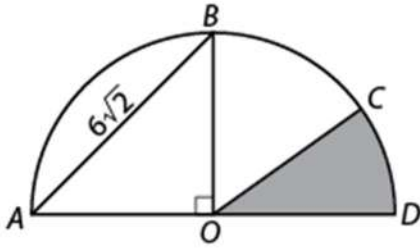
- (A) 6
- (B) 7.2
- (C) 8
- (D) 8.5

3.

In geology, the water table is the level below which the ground is saturated with water. Wells must be dug below this point to bring water up into the well. Except in cases of severe flooding, the water level in a well does not rise above the water table. Suppose a cylindrical well is 6 feet wide and 60 feet deep in an area where the water table is 40 feet below ground level. Assuming no unusual circumstances, what is the volume in cubic feet of the water in the well at any given time?

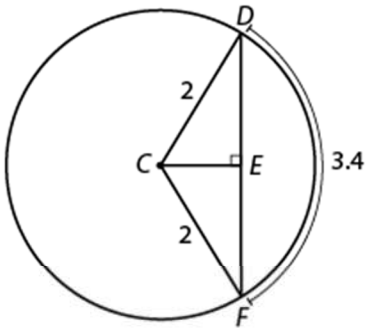
- (A) $180n$
- (B) $360n$
- (C) $540n$
- (D) $720n$

4.



If segment AD is a diameter of the circle shown above, and the length of arc CD is n , what is the area of the shaded region? Use 3.14 to approximate n and round your answer to the nearest tenth.

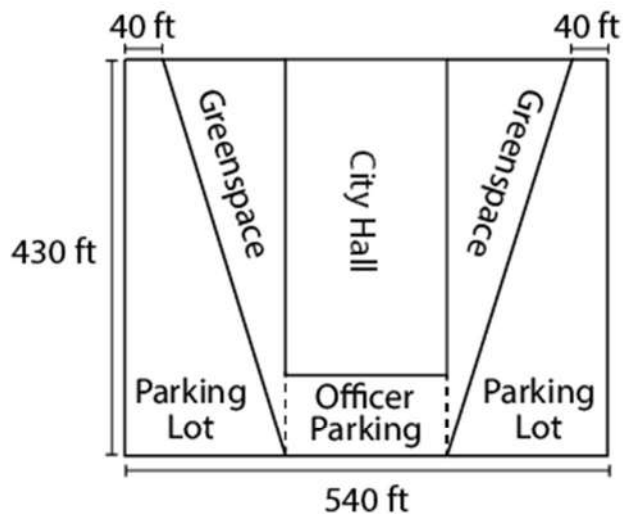
5. Calculator



Which of the following gives the length of chord DF in the figure above?

- (A) $2\cos(1.7)$
- (B) $2\sin(1.7)$
- (C) $4\cos(0.85)$
- (D) $4\sin(0.85)$

6. Calculator



Many cities try to work "greenspaces" into their city planning because living plants help filter the city's air, reducing the effects of pollution. The figure above shows the plans for a new greenspace around City Hall, which will be created by converting portions of the existing parking lots. If the width of each parking lot is the same as the width of the City Hall building, how many thousands of square feet of greenspace will there be after the conversion? Round to the nearest thousand and enter your answer in terms of thousands. (For example, enter 14,000 as 14.)

7.

If x is an angle such that $0 < x < 90^\circ$, which of the following statements is not always true?

- (A) $\cos(x) > 0$
- (B) $\cos(-x) > 0$
- (C) $\cos(x + 90^\circ) < 0$
- (D) $\cos(2x) < 0$