5.1 Recitation Exercises

1. Find the least positive angle that is coterminal with the given angles.

   a) $-800°$

   b) $\frac{51\pi}{2}$

   c) $1270°$

   d) 10

2. If the arc length $\frac{4\pi}{3}$ cm subtends a central angle, θ in a circle with diameter 12 cm, find the degree measure of the angle θ.

3. Each tire of a car has a radius of 40 cm. If the tires are rotating at 500 revolutions per minute, find the speed of the car in kilometers per hour.

4. Two pulleys in the figure have radii of 15cm and 8 cm respectively. If the larger pulley rotates 50 times in a minute, then the angular speed of the smaller pulley in radians per second is

   A) $\frac{75\pi}{4}$ **B)** $\frac{25\pi}{8}$ **C)** $\frac{75\pi}{8}$ **D)** $\frac{25}{4}$ **E)** $\frac{375\pi}{2}$
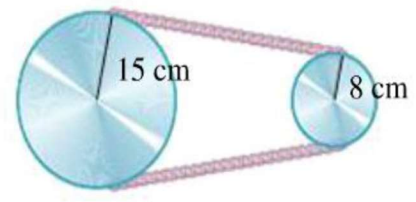
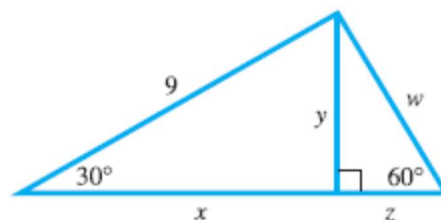5. A hard disk in a computer rotates at 300 revolutions per minute. Through how many degrees does a point on the edge of the disk move in 3 seconds?

   **A)** $7200°$ **B)** $6400°$ **C)** $10800°$ **D)** $5400°$ **E)** $1800°$

5.2 Recitation Exercises

1. Find the value of $\left(\sin\frac{\pi}{3}\cos\frac{\pi}{4} - \sin\frac{\pi}{4}\cos\frac{\pi}{3}\right)^2$.

2. Find the exact value of each labeled part with

a variable in the following figure

3. The angle of elevation from the top of a small building to the top of a taller building is $60°$, while the angle of depression to the bottom is $30°$. If the shorter building is 30 m high, then the height of the taller building is

    A) $\left(30 + 60\sqrt{3}\right) m$

    B) $150\ m$

    C) $100\sqrt{3}\ m$

    D) $120\ m$

    E) $90\sqrt{3}\ m$
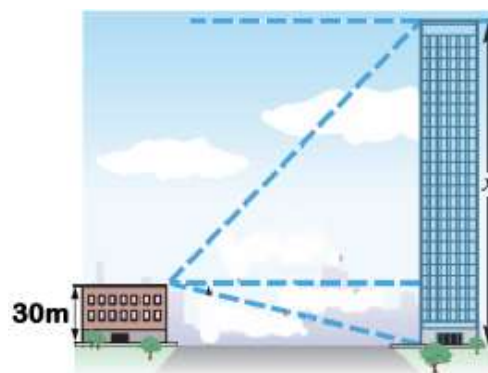
1. From a point on the ground 100 ft from the base of a building, an observer finds that the angle of elevation to the top of the building is $60°$ and that the angle of elevation to the top of a flagpole on top of the building is α, with $\sin\alpha = \frac{4}{\sqrt{19}}$. Then the Length of the flagpole is

A) $\frac{100}{3}\sqrt{3}\ feet$ **B)** $300\ feet$ **C)** $100\ feet$ **D)** $3\ feet$ **E)** $\sqrt{3}\ feet$

5.3 Recitation Exercises

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1. Find the reference angle for the given angle
    a) $800°$
    b) $-105°$
    c) $\dfrac{5\pi}{7}$
    d) 20

2. Suppose that the terminal side of the angle θ in the standard position is the line $3x + 2y = 0, \ x \leq 0$, then find $csc\,\theta$.

3. Let θ be an angle in the third quadrant and satisfying:

$$2\sec\theta = 3\csc\theta \ , \text{ then find } \csc\theta + \sec\theta.$$

4. If $\cot^2\theta = 16$ and θ terminates in the third quadrant, then $\sec\theta =$
    A) $\sqrt{17}$ **B)** $\dfrac{\sqrt{17}}{4}$ **C)** $-\dfrac{\sqrt{17}}{4}$ **D)** $-\dfrac{4}{\sqrt{17}}$ **E)** $-\sqrt{17}$