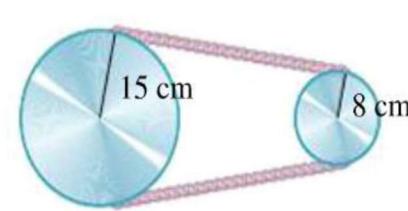


## 5.1 Recitation Exercises

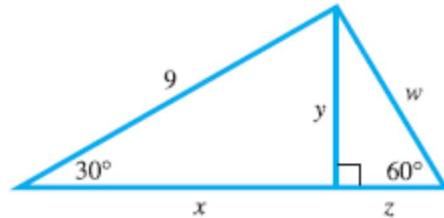
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- Find the least positive angle that is coterminal with the given angles.
  - $-800^\circ$
  - $\frac{51\pi}{2}$
  - $1270^\circ$
  - 10
- If the arc length  $\frac{4\pi}{3}$  cm subtends a central angle,  $\theta$  in a circle with diameter 12 cm, find the degree measure of the angle  $\theta$ .
- 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.
- Two pulleys in the figure have radii of 15 cm 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
 
  - $\frac{75\pi}{4}$
  - $\frac{25\pi}{8}$
  - $\frac{75}{8}$
  - $\frac{25\pi}{4}$
  - $\frac{37}{2}$
- 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?
  - $7200^\circ$
  - $6400^\circ$
  - $10800^\circ$
  - $5400^\circ$
  - $1800^\circ$

## 5.2 Recitation Exercises

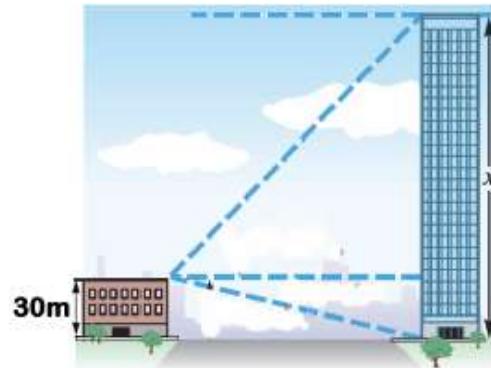
1. Find the value of  $\left(\sin \frac{\pi}{3} \cos \frac{\pi}{4} - \sin \frac{\pi}{4} \cos \frac{\pi}{3}\right)^2$ .

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  $60^\circ$ , while the angle of depression to the bottom is  $30^\circ$ . If the shorter building is 30 m high, then the height of the taller building is

- A)  $(30 + 60\sqrt{3}) m$
- B)  $150 m$
- C)  $100\sqrt{3} m$
- D)  $120 m$
- E)  $90\sqrt{3} m$



5. 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  $60^\circ$  and that the angle of elevation to the top of a flagpole on top of the building is  $\alpha$ , with  $\sin \alpha = \frac{4}{\sqrt{19}}$ . Then the Length of the flagpole is

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

### 5.3 Recitation Exercises

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1. Find the reference angle for the given angle

- a)  $800^\circ$
- b)  $-105^\circ$
- c)  $\frac{5\pi}{7}$
- d) 20

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

3. Let  $\theta$  be an angle in the third quadrant and satisfying:

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

4. If  $\cot^2 \theta = 16$  and  $\theta$  terminates in the third quadrant, then  $\sec \theta =$

- A)  $\sqrt{17}$
- B)  $\frac{\sqrt{17}}{4}$
- C)  $-\frac{\sqrt{17}}{4}$
- D)  $-\frac{4}{\sqrt{17}}$
- E)  $-\sqrt{17}$