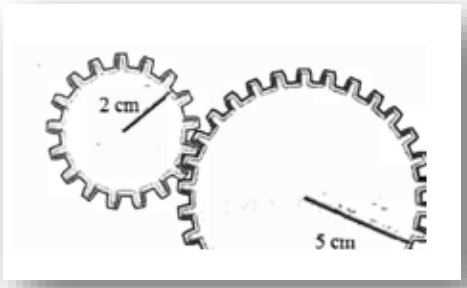
5.1: (Angle Measure)

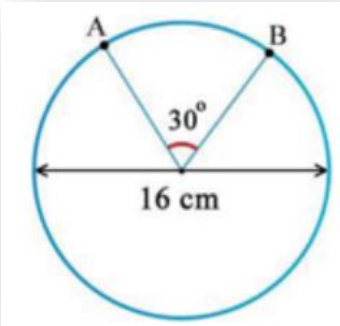
An arc of length 150 m subtends a central angle of $300°$ in a circle of radius r. The radius r is equal to (a) $\frac{90}{\pi}$ m (b) $\frac{1}{2}$ m (c) $\frac{\pi}{90}$ m (d) $\frac{180}{\pi}$ m (e) 2500πm	Arc Length.
The length of the arc intercepted by a central angle of $210°$ in a circle of radius 6 cm is given A) 7πcm B) $\frac{7\pi}{2}$ cm C) 630 cm D) $\frac{\pi}{2}$ cm E) $\frac{7}{2}$ cm	Arc Length.
If the arc length 14πcm makes an angle $315°$ in a circle, then the radius of the circle is A) 8 cm B) 16 cm C) 24 cm D) $\frac{49\pi^2}{2}$ cm E) $\frac{56}{5}$ cm	Arc Length.

If an arc subtends a central angle of measure 60° in a circle with radius 5 cm, then the arc length is A) $\frac{5\pi}{6}$ cm B) $\frac{5\pi}{3}$ cm C) $\frac{5\pi}{4}$ cm D) $\frac{\pi}{3}$ cm E) $\frac{10\pi}{3}$ cm	Arc Length.
The length of the arc intercepted by a central angle of measure 30° in a circle of diameter 72 cm is A) 12πcm B) 6πcm C) 36πcm D) 1080 cm E) 6 cm	Arc Length.
The length of the are intercepted by a central angle of measure 144° of a circle of diameter 40 cm is A) 16πcm B) 20πcm C) 48πcm D) 32πcm E) 2880 cm	Arc Length.

If an arc of length $\frac{16\pi}{3}$ cm subtends a central angle of measure θ° in a circle with diameter 24 cm, then $\theta =$ A) 80 B) 40 C) 20 D) 160 E) 240	Arc Length.
If a 100π centimeters arc length subtends a 240° central angle in a circle of radius r, then the radius r in centimeters is A) 75 B) 150 C) 300 D) $\frac{12\pi}{5}$ E) $\frac{5\pi}{12}$	Arc Length.
In a circle of radius r, an arc length of 10π centimeters is intercepted by a central angle 200°, then r is equal to: A) 9 centimeters. B) $\frac{10}{9}$ centimeters. C) 9π centimeters. D) $\frac{9\pi}{10}$ centimeters. E) $\frac{100}{9}$ centimeters.	Arc Length.

The length of an arc intercepted by a central angle $135°$, in a circle of radius 2πcm. is A) $\frac{3\pi^2}{2}$ cm. B) $\frac{3\pi}{2}$ cm. C) $\frac{3}{8}$ cm. D) $\frac{3}{2}$ cm. E) $\frac{8\pi^2}{3}$ cm.	Arc Length.
A tire rotates 240 times per minute. Through how many degrees does a point on the edge of the tire move in $1/2$ second? A) $720°$ B) $1040°$ C) $1440°$ D) $180°$ E) $360°$	Angular Speed.
The arc length of 200πcm subtends a central angle of $300°$ in a circle of radius r. The radius r is equal to (A) 120 cm B) $\frac{2\pi}{3}$ cm C) 180 cm D) 150 cm E) $\frac{3}{2\pi}$cm	Arc Length.

In the adjacent figure if the smaller gear rotates through an angle of 225° then the angle through which the larger gear rotates is equal to: (a) $\frac{\pi}{2}$ (b) $\frac{25\pi}{8}$ (c) 270° (d) 135° (e) 180° 	Angular vs Linear Speed.
The length of the arc intercepted by a central angle 330° of a circle of radius 12 cm is A) 22πcm B) 3960 cm C) 396 cm D) 18πcm E) 17πcm	Arc Length.
If a 12πcm arc length subtends a central angle of measure 40° in a circle with radius r cm, then A) 54 B) 36 C) 24 D) 12 E) 72	Arc Length.

The length of an arc that subtends a central angle of 80° in a circle of diameter 20 cm is equal to A) $\frac{80\pi}{9}$ cm B) $\frac{29\pi}{3}$ cm C) 800 cm D) $\frac{\pi}{4}$ cm E) $\frac{40\pi}{9}$ cm	Arc Length.
If the arc length 21πcm makes a central angle of 315° in a circle, then the radius of the circle is A) 12 cm B) 16 cm C) 24 cm D) $\frac{7\pi}{105}$ cm E) $\frac{84}{5}$ cm	Arc Length.
In the adjacent figure, the arc length $AB =$ A) $\frac{4\pi}{3}$ cm B) $\frac{8\pi}{3}$ cm C) 480 cm D) $\frac{2\pi}{3}$ cm E) 240 cm 	Arc Length.

If $\alpha = 575^\circ$ and $\theta = \frac{-11\pi}{6}$ are two angles in the standard position, then which one of the following statements is TRUE about the locations of α and θ ? A) α is a Quadrant III angle and θ is a Quadrant IV angle B) α is a Quadrant II angle and θ is a Quadrant IV angle C) α is a Quadrant IV angle and θ is a Quadrant III angle D) α is a Quadrant III angle and θ is a Quadrant I angle E) α is a Quadrant I angle and θ is a Quadrant II angle	Angle Measure.
The value of $\theta = \frac{11\pi}{15}$ in degrees is equal to: A) 132° B) 135° C) 137° D) 138° E) 139°	Angle Measure.
The value of $\theta = \frac{11\pi}{15}$ in degrees is equal to : A) 132° B) 135° C) 137° D) 138° E) 139°	Angle Measure.

If x is the largest negative angle coterminal with $\alpha = -975^\circ$ and y is the largest negative angle coterminal with $\beta = 75^\circ$, then $x - y =$ A) 30° B) 60° C) -180° D) -60° E) -135°	Co-terminal Angles.
Which one of the following angles is NOT coterminal with 361° ? A) -721° B) -359° C) 1° D) -1079° E) 1081°	Co-terminal Angles.
If $\alpha = 475^\circ$ and $\beta = -\frac{11\pi}{6}$ are two angles in standard position, $2\alpha + \beta$ is in the A) third quadrant B) first quadrant C) second quadrant D) fourth quadrant E) quadrantal angle	Co-terminal Angles.

The greatest negative angle that is coterminal with $\frac{27\pi}{5}$ is A) $-\frac{3\pi}{5}$ B) $-\pi$ C) $-\frac{2\pi}{5}$ D) $-\frac{4\pi}{5}$ E) $-\frac{\pi}{5}$	Co-terminal Angles.
Which one of the following angles is NOT coterminal with $60°$? A) $-240°$ B) $420°$ C) $-300°$ D) $780°$ E) $-660°$	Co-terminal Angles.
Which one of the following angles is coterminal with the angle $777°$? A) $-663°$ B) $50°$ C) $-50°$ D) $-203°$ E) $47°$	Co-terminal Angles.

Which one of the following angles is NOT coterminal with 55° ? A) 235° B) 415° C) -305° D) 775° E) -665°	Co-terminal Angles.
Which one of the following angles is NOT coterminal with -361° ? (A) 1° B) -1° C) 359° D) -721° E) -1081°	Co-terminal Angles.
If x° is a positive angle in standard position, which one of the following angles is coterminal with x^* ? A) $x^\circ - 360^\circ$ B) $x^\circ - 90^\circ$ C) $x^* + 180^*$ D) $360^* - x^*$ E) $x^* + 180^\circ$	Co-terminal Angles.

If $\alpha = \theta + 45^\circ$, then which one of the following angles is NOT coterminal with θ ? A) $\alpha - 235^\circ$ B) $\alpha + 315^\circ$ C) $\alpha - 405^\circ$ D) $\alpha + 675^\circ$ E) $\alpha - 765^\circ$	Co-terminal Angles.
Which one of the following angles is NOT coterminal with 50° A) 310° B) 410° C) -310° D) 770° E) -670°	Co-terminal Angles.
Each wheel on a bicycle has a radius of 30 centimeters. If the wheels are rotating at 150 revolutions per minute, then the linear speed of the bicycle in meters per second is A) 0.45πm/s B) 4.5πm/s C) 1.5πm/s D) $\frac{5\pi}{3}$ m/s E) 0.15πm/s	Linear and Angular Speed.

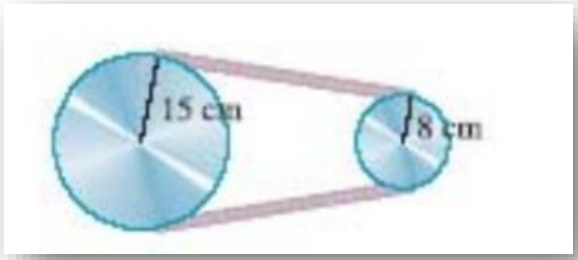
The wheels of a car have radius 9 inches and are rotating at 300 revolutions per minute. The speed of the car in inches per second is A) 150π B) 45π C) 90π D) 900π E) 180π	Linear and Angular Speed.
The linear speed of a compact disc is 30π feet per minute. If the diameter of the disc is 10 feet, then the angular speed of the disc in revolutions per minute is A) 3 B) 4 C) 6 D) 5 E) 2	Linear and Angular Speed.
A tire is rotating 600 times per minute. Through how many degrees does a point on the edge of the tire move in 0.25sec ? A) 900° B) 800° C) 700° D) 600° E) 500°	Linear and Angular Speed.

If the tires on a bicycle with radius 18 centimeters are rotating at 240 revolutions per minute, then the speed of the bicycle in centimeters per second is A) 144π B) 72π C) 8π D) 216π E) 288π	Linear and Angular Speed.
If a car is moving along a circular path of radius 2 kilometers and making $\frac{1}{4}$ revolution per minute, then the distance traveled by the car in kilometers along the path in 3 hours is A) 180π B) 240π C) 60π D) 120π E) 300π	Linear and Angular Speed.
The tires of a car have diameter 40 centimeters and are turning 5 times per second. How fast is the car traveling in centimeters per minute? A) 12000π B) 4000π C) 5000π D) 8400π E) 2000π	Linear and Angular Speed.

A pulley has a radius of 10 centimeters. If it takes 20 seconds for 60 centimeters of the belt to go around the pulley, then the angular speed of the pulley in radians per second, is equal to: A) 0.3 B) 3 C) $\frac{10}{3}$ D) $\frac{1}{120}$ E) 120	Linear and Angular Speed.
A wheel has a radius 25 feet, if it takes the wheel 30 seconds to turn $150°$, the angular speed of the wheel is: A) $\frac{\pi}{36}$ radian/sec. B) $\frac{\pi}{360}$ radian/sec. C) $\frac{75\pi}{3}$ radian/sec. D) $\frac{\pi}{30}$ radian/sec. E) $\frac{125\pi}{6}$ radian/sec.	Linear and Angular Speed.
If the point P moves around the circumference of a unit circle at an angular speed of 1rad/sec, then the time it takes P to complete one rotation on the circle is: A) 2πsec B) πsec C) 1sec D) $\frac{1}{\pi}$ sec E) $\frac{\pi}{2}$ sec	Linear and Angular Speed.

Each tire of a car has a radius of 40 cm. If the tires are rotating at 500 revolutions per minute, then the speed of the car in kilometers per hour is: $(1\text{ km} = 10^5\text{ cm})$ A) 24π B) 150 C) 30π D) $\frac{51}{2}\pi$ E) 19π	Linear and Angular Speed.
If a point on the edge of a circle with radius 30 cm, is rotating with angular speed of $\frac{\pi}{10}$ radian per second, then the distance traveled by the point in 45 seconds is (A) 135πcm B) 150πcm C) 180πcm D) 90πcm E) 145πcm	Linear and Angular Speed.
If the tires on a car have diameter 36 cm and are rotating at 70 revolutions per minute, then the speed of the car in cm per second is equal to: A) 42π B) 21π C) 84π D) 1260 E) 2520	Linear and Angular Speed.

Suppose that a point P is on the edge of a circle with diameter 20 cm, and *P* is rotating with angular speed of $\frac{\pi}{18}$ radian per second. The distance travelled by P in 6 seconds is A) $\frac{10\pi}{3}$ cm B) $\frac{20\pi}{3}$ cm C) 10πcm D) $\frac{10\pi}{7}$ cm E) $\frac{10\pi}{9}$ cm	Linear and Angular Speed.
A point on the edge of a disc is 6 feet from the center. If the disc is rotating at 5 revolutions per minute, then the linear speed in feet per minute is A) 60π B) 30 C) 30π D) 120π E) 120	Linear and Angular Speed.
A belt runs a pulley of radius 9 centimeters at 80 revolutions per minute, then the linear speed of the belt in centimeters per second is (a) 24π (b) 1440π (c) 720 (d) $\frac{6}{\pi}$ (e) $\frac{360}{\pi}$	Linear and Angular Speed.

The two pulleys in the figure have radii 15 cm and 8 cm respectively. If the larger pully rotates 120 times in a minute, then the angular speed of the smaller pulley in radians per second is A) $\frac{15\pi}{2}$ B) $\frac{13\pi}{4}$ C) $\frac{25\pi}{4}$ D) 5π E) 15π 	Linear and Angular Speed.
The wheels of a car have radius 30 cm, they are rotating at 250rev/min. Then, the distance (in km) run by the car in 30 minutes is equal to A) $\frac{450}{\pi}$ km B) 15πkm C) 7.5πkm D) 4.5πkm E) 0.05πkm	Linear and Angular Speed.