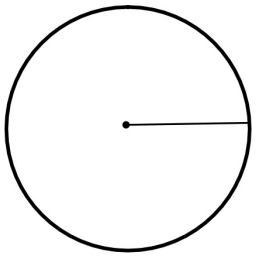
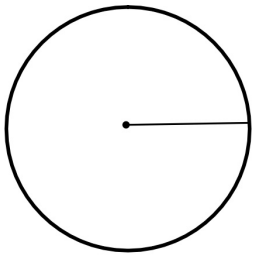
There is more than one unit you can use to measure an angle.

The measure you are used to is DEGREES



One full turn around a circle is equivalent to 360°

Another unit to measure angles is RADIANS



One full turn around a circle is equivalent to 2π radians.

This means that

$360^\circ = 2\pi$

This leads to the following conversion factors:

$\frac{360^\circ}{2\pi}$ or $\frac{2\pi}{360^\circ}$

Convert to degrees: $\frac{3\pi}{4}$

$\frac{3\pi}{4} \cdot \frac{360^\circ}{2\pi} = 135^\circ$

which conversion factor should be used?

$\frac{360^\circ}{2\pi}$ or $\frac{2\pi}{360^\circ}$

Convert to radians: $300°$

$\frac{300°}{1} \cdot \frac{2\pi}{360°} = \frac{5\pi}{3}$

which conversion factor should be used?

$\frac{360°}{2\pi}$ or $\frac{2\pi}{360°}$

Which of the following is equal to $\sin\left(\frac{\pi}{5}\right)$? .5877

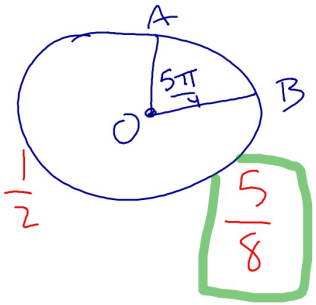
A. $-\cos\left(\frac{\pi}{5}\right)$

B. $-\sin\left(\frac{\pi}{5}\right)$

C. $\cos\left(\frac{3\pi}{10}\right)$

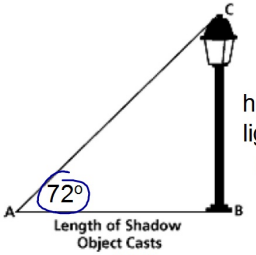
D. $\sin\left(\frac{7\pi}{10}\right)$

In a circle with center O, central $\angle AOB$ has a measure of $\frac{5\pi}{4}$ radians. The area of the sector formed by $\angle AOB$ is what fraction of the area of the circle?



$\frac{\frac{5\pi}{4}}{2\pi} = \frac{\frac{5}{4}}{2} = \frac{5}{4} \cdot \frac{1}{2} = \frac{5}{8}$

The sun casts a 12 foot shadow of a light pole. Find the height of the light pole to the nearest tenth of a foot.



36.9

SOHCAHTOA

$\frac{\tan 72°}{1} = \frac{x}{12}$

$= x$

Section 9-7: Probability of Multiple Events

Independent Events:
When the outcome of the first event does NOT affect the outcome of the second event.

P(A and B) = P(A) • P(B)

Dependent Events:
When the outcome of the first event DOES affect the outcome of the second event.

P(A and B) = P(A) • P(BafterA)

Probability of (A or B)

If A and B ARE mutually exclusive:

P(A or B)= P(A) + P(B)

If A and B are NOT mutually exclusive:

P(A or B)= P(A) + P(B) - P(A and B)

P(A and B) = P(A) • P(B) (usually)

You are going to pick a person at random. Find each probability as a fraction.

A survey was taken asking people to pick their favorite kind of movie from the three listed below. They could only pick one.

	Cartoon	Action	Mystery	
Child	55	15	6	76
Adult	12	28	31	71
	67	43	37	147

1. P(Cartoon or Mystery) $= \frac{104}{147}$

2. P(Adult or Action) $\frac{71+43-28}{147}$ or $\frac{71+15}{147}$ $\frac{86}{147}$

3. P(Mystery and Action) $\frac{0}{147}$

4. P(Cartoon and Child) $\frac{55}{147}$

A survey was conducted in the US and Canada to find out what people's favorite sport was. The results are shown below. One person from each country is chosen. Find each probability as a percent to the nearest tenth.

United States

Baseball	Football	Soccer	Hockey
28%	41%	9%	22%

Canada

Baseball	Football	Soccer	Hockey
9%	6%	7%	78%

1. Person from US that likes Football and a person from Canada that likes Hockey.

$41\% \cdot 78\% = (41)(78) = 31.98\%$

2. Two people that like Soccer.

$9\% \cdot 7\% = (.09)(7) = .63\%$

3. A person from the US that likes Hockey or Football and a person from Canada that likes Baseball.

$63\% \cdot 9\% = 5.67$