**Example 4**

Change $11\pi/6$ to degrees.

$$\frac{11\pi r}{6} \times \frac{180^\circ}{\pi r} = 330^\circ \qquad \frac{11\pi r}{6} = 330^\circ$$

In the future, you can identify radians by the fact that they have $\pi$ in them. We will not keep putting an $r$ in equations involving unit multipliers.

**Practice Problems 1**

Find the radian measure of each angle. (1 degree = $\pi/180$ radians.)

1. $30^\circ$
2. $135^\circ$
3. $60^\circ$
4. $315^\circ$
5. $-120^\circ$
6. $-300^\circ$

Find the degree measure of each angle. (1 radian = $180/\pi$ degrees.)

7. $\frac{\pi}{4}$
8. $\frac{5\pi}{6}$
9. $\frac{8\pi}{3}$
10. $-\frac{2\pi}{5}$
11. $-\frac{9\pi}{4}$
12. $\frac{11\pi}{9}$

Radians may also be expressed as decimals using 3.14 for $\pi$. Then $\pi/4$, which is equivalent to 45°, may be written as $3.14 \div 4 = .785$. To be more accurate, we could use the $\pi$ key on a calculator and get $3.141592654 \div 4 = .785398163$, but for brevity and clarity, I am going to represent $\pi$ as 3.14.

**Practice Problems 2**

Find the decimal equivalent for the following radians. Use 3.14 for $\pi$.

1. $\frac{\pi}{2}$
2. $\frac{\pi}{3}$
3. $\frac{2\pi}{3}$
4. $\frac{\pi}{6}$

It is strongly suggested that you memorize the degree-radian equivalents for 30°, 45°, 60°, and 90°. You may also learn the multiples of these angles, but if you know $\pi/6 = 30°$, it is fairly easy to find $5\pi/6 = 150°$. These equivalents will be used a great deal in upcoming lessons.

**Practice Problems 3**

Fill in the table with the missing information. Give the radians with $\pi$ and in decimal form. Give trig functions in decimals to three places.

| | degrees | radians (fraction) | radians (decimal) | sin | cos | tan | csc | sec | cot |
|---|---|---|---|---|---|---|---|---|---|
| 1. | 45° | | | | | | | | |
| 2. | | $\frac{\pi}{2}$ | | | | | | | |
| 3. | 30° | | .524 | | | | | | |

**Practice Problems 4**

1. The radius is 50' and the central angle is 120°. Find the distance of the arc opposite the 120° angle.

2. The radius is 77' and the central angle is 30°. Find the distance of the arc opposite the 30° angle.

3. The radius is 77' and the central angle is 150°. Find the distance of the arc opposite the 150° angle.