"Computing the Circumference" and "The Reverse Problem"

Supplementary material for groups that move at a faster pace than other groups in the class.

Computing the Circumference

If the diameter of a circle is known, we don't need to measure the circumference, we can compute it. We saw that for any circle the value of the ratio c / d = 3.14. We can use this information to compute the circumference if the diameter is known, c = d × 3.14 or c = d × π.

- Compute the circumference of a circle that has a diameter of 12 cm.
- Compute the circumference of a circle that has a diameter of 9 feet.

In some cases, it is the radius r of the circle that is known. We can use this information to compute the circumference. Remember that two times the radius is equal to the diameter, 2 × r = d. Therefore, the circumference that is equal to d × 3.14 or d × π will be equal to 2 × r × 3.14 or 2 × r × π.

- Compute the circumference of a circle of radius 2.5 cm.
- *What is the circumference of a circle of radius 6 ft?*

The Reverse Problem

Computing the diameter given the circumference.

In some instances it is easy to measure the circumference, but harder to measure the diameter or the radius, for example, in the case of a tree. In this case we can compute the diameter by dividing the circumference by π. For example, if the circumference is 23 cm, the diameter will be 23 ÷ π or quite approximately 23 ÷ 3.14 = 7.3

- Compute the diameter of a circle that has a circumference of 4 ft.
- *What is the radius of a circle that has a circumference of 6 ft?*