

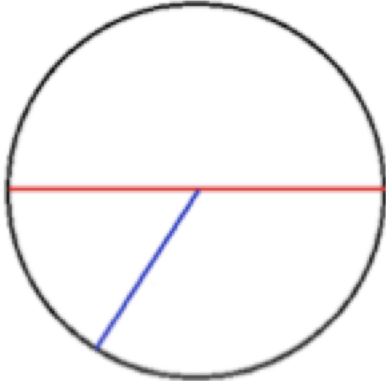
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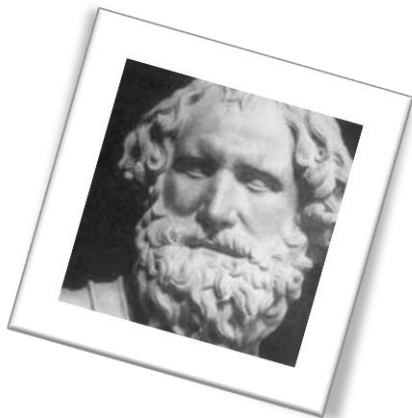
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**Aim: How can we find the 'perimeter' of the circle?**

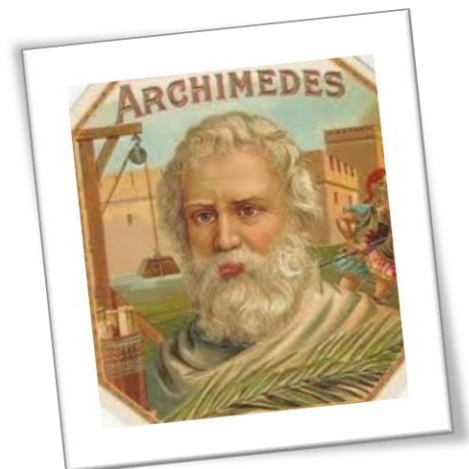
What is a circle?

A **circle** is the \_\_\_\_\_

|                                                                                    |                                                                                                             |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
|  | <p><b><u>Vocabulary:</u></b></p> <p><b>Radius:</b></p> <p><b>Diameter:</b></p> <p><b>Circumference:</b></p> |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|



Archimedes was an Ancient Greek mathematician born in 287 B.C. He lived in Syracuse, Sicily (which was apart of Magna Graecia, or Greece at the time!). Stephen Hawking referred to Archimedes as the “greatest mathematician of antiquity.”



**How can we find the 'perimeter' of a circle?**

Archimedes realized that if he put a polygon inside (inscribed) in a circle and the same type of polygon outside (circumscribed) of a given circle, the perimeter must be somewhere between the two perimeters.

| # of Sides of Inside/Outside Polygon | Inside Perimeter | Outside Perimeter | Diameter | <i>Inside Perimeter</i><br><i>Diameter</i> | <i>Outside Perimeter</i><br><i>Diameter</i> | Average |
|--------------------------------------|------------------|-------------------|----------|--------------------------------------------|---------------------------------------------|---------|
| <b>3</b>                             |                  |                   | <b>5</b> |                                            |                                             |         |
| <b>4</b>                             |                  |                   | <b>5</b> |                                            |                                             |         |
| <b>5</b>                             |                  |                   | <b>5</b> |                                            |                                             |         |
| <b>6</b>                             |                  |                   | <b>5</b> |                                            |                                             |         |
| <b>7</b>                             |                  |                   | <b>5</b> |                                            |                                             |         |
| <b>8</b>                             |                  |                   | <b>5</b> |                                            |                                             |         |
| <b>9</b>                             |                  |                   | <b>5</b> |                                            |                                             |         |
| <b>30</b>                            |                  |                   | <b>5</b> |                                            |                                             |         |
| <b>50</b>                            |                  |                   | <b>5</b> |                                            |                                             |         |
| <b>70</b>                            |                  |                   | <b>5</b> |                                            |                                             |         |
| <b>90</b>                            |                  |                   | <b>5</b> |                                            |                                             |         |
| <b>100</b>                           |                  |                   | <b>5</b> |                                            |                                             |         |

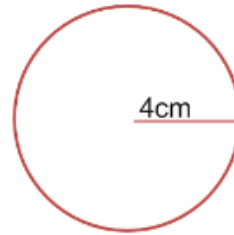
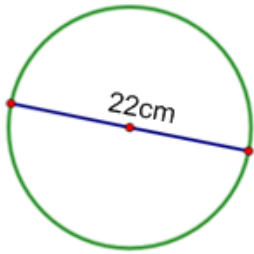
\_\_\_\_\_ =

## Formula for the Circumference of a Circle

\_\_\_\_\_ or... \_\_\_\_\_

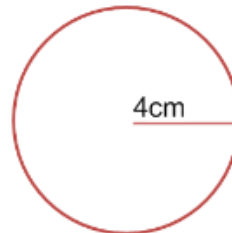
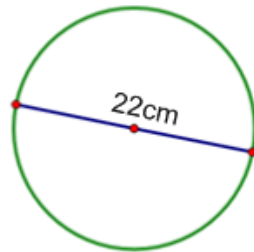
1. Find the circumference of the following circles.

- a. Calculate your answer to the nearest tenth.    b. Calculate your answer to the nearest tenth.

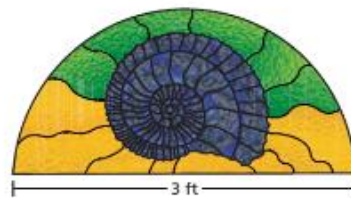


- a. Leave your answer in terms of pi.

- b. Leave your answer in terms of pi.



2. Find the circumference of each figure. Round your answer to the nearest tenth.



3. Randy's circular garden has a radius of 4.6 feet. He wants to enclose the garden with a circular fence that costs \$0.75 per foot. How much will the fence cost?

Diagram



## **SUMMARY**

- 1. What is the formula for circumference?**
- 2. What does it mean to 'leave in terms of pi?'**