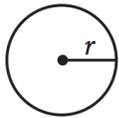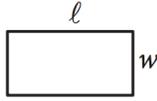## Geometry Relationships

The figures below are from the SAT's reference information. Note that <u>no reference information is available on the ACT</u>.
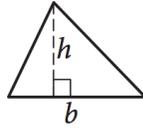
- You must memorize this row of 2-dimensional (plane geometry) relationships:
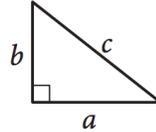

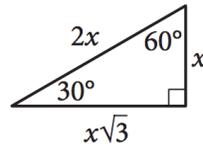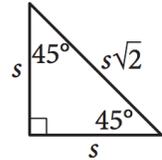$$A = \pi r^2$$
$$C = 2\pi r$$

$$A = \ell w$$

$$A = \frac{1}{2}bh$$
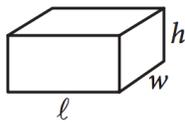
$$c^2 = a^2 + b^2$$

Special Right Triangles

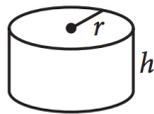- You must also memorize the area and volume relationships for squares and cubes:

$$A = s^2 \qquad V = s^3$$

- Try to memorize these 3-dimensional relationships, but at least practice using them:
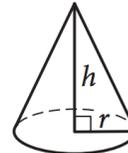

$$V = \ell wh$$

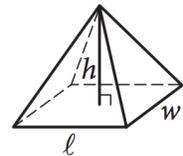$$V = \pi r^2 h$$

$$V = \frac{4}{3}\pi r^3$$

$$V = \frac{1}{3}\pi r^2 h$$

$$V = \frac{1}{3}\ell wh$$

- This set should be memorized, too *(Note: $180° = \pi$ is easier than $360° = 2\pi$)*

  The number of degrees of arc in a circle is 360.

  The number of radians of arc in a circle is 2π.

  The sum of the measures in degrees of the angles of a triangle is 180.

- Finally, memorize Pythagorean Triples, *sets of integers that fit into the Pythagorean Theorem.* The basic Pythagorean Triples are:

$$3, 4, 5 \qquad\qquad 5, 12, 13 \qquad\qquad 7, 24, 25$$

Multiples of these ratios work the same way. For example:

4	×	3, 4, 5	=	12, 16, 20
2	×	5, 12, 13	=	10, 24, 26
0.1	×	7, 24, 25	=	0.7, 2.4, 2.5