Distinct Diagonals Of A Regular Polygon:

A. The number of distinct diagonals of a regular n-agon is determined by the following formula:

$$(n-2) \text{ triangular number - 1}$$

B. See *Triangular Numbers.*

C. Examples

    Ex [1] The number of distinct diagonals of a regular pentagon is _____.

        a. Since "penta" means 5, we need the 3rd triangular number minus 1.

        b. The 3rd triangular number is 6. 6-1=5.

        c. The answer is 5.

    Ex [2] The number of distinct diagonals of a regular decagon is _____.

        a. Since "deca" means 10, we need the 8th triangular number minus 1.

        b. The 8th triangular number is 36. 36-1=35.

        c. The answer is 35.