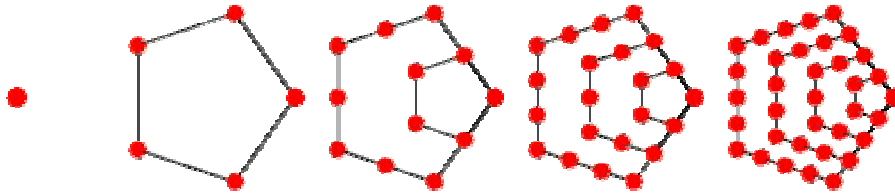


Pentagonal Numbers:



- A. Pentagonal Numbers are numbers a pentagon. In other words: 1, 5, 12, 22, etc. that create
- B. The n^{th} pentagonal number can be found by the formula:

$$\frac{n(3n-1)}{2}$$

- C. In number sense, the question will only ask for the n^{th} pentagonal number.

Ex [1] The 8^{th} pentagonal number is _____.

- a. Using the formula we get: $\frac{8 \times (3 \cdot 8 - 1)}{2} = 4 \times 23 = 92$.
- b. The answer is 92.

Ex [2] The 13^{th} pentagonal number is _____.

- a. Using the formula we get: $\frac{13 \times (3 \cdot 13 - 1)}{2} = 13 \times 19 = 247$.
- b. The answer is 247.

- D. Here are some ways of manipulating pentagonal numbers:

1. The difference of successive pentagonal numbers is:

$$3n - 2, \text{ where } n \text{ is the largest}$$

2. Adding successive pentagonal numbers gives:

$$3n^2 - 4n + 2, \text{ where } n \text{ is the largest}$$

NOTE: You might see #1 on a test, but I doubt you will ever see #2 on a test.