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| **Objectives:**   * Solve geometry questions. * Solve trigonometry questions. |

***MONDAY (11.25.24****)*

**Turn in your Project:** A ***Triangle Puzzle* at the beginning of this class.**

* Round your final answers to 2 decimal places.
* Explain your solutions.
* Write your work clearly, moving sequentially down the length of your paper.

**Discuss the previously assigned SAT questions.**

**New Objectives:**

* Find the midpoint between 2 points.
* Find the distance between 2 points.
* Identify an arithmetic sequence.
* Give the common difference of an arithmetic sequence.
* Find the nth term of an arithmetic sequence.
* Find arithmetic means between 2 terms of an arithmetic sequence.
* Identify a geometric sequence.
* Give the common ratio of a geometric sequence.
* Find the nth term of a geometric sequence.
* Find geometric means between 2 terms of a geometric sequence.

**Notes:**

1. Find the midpoint between the points (-8, 3) and (27, 10).
2. Find the distance between the points (-8, 3) and (27, 10). Round your answer to one decimal place.
3. Give an example of an arithmetic sequence. What is the common difference, ***d***?
4. Give an example of a geometric sequence. What is the common ratio, ***r***?

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| **Class Work:**  **Arithmetic sequences** follow a pattern of **adding a fixed amount from one term to the next**. The fixed amount is called the **common difference, *d.*** To find the common difference, subtract the first term from the second term.  To **find any term** of an **arithmetic sequence**:***arformula1*** where *a*1 is the first term of the sequence, *d*is the common difference, *n*is the number of the term to find.   1. Find the common difference for this arithmetic sequence: 4, 15, 26, 37, … .   Write the next 3 terms.  Find the 10th term.   1. Find the common difference for the arithmetic sequence whose formula is an = 6n + 3.   Write the first 5 terms.  Find the 200th term.   1. Find the 20th term of the sequence, 3, 5, 7, 9, 11, … . 2. ***Arithmetic Means*** are terms between 2 given terms of an arithmetic sequence. Insert 3 arithmetic means between 7 and 23.   **Geometric sequences** follow a pattern of **multiplying a fixed amount (not zero) from one term to the next**. The fixed amount is called the **common ratio, *r*,**referring to the fact that the ratio (fraction) of second term to the first term yields the common multiple. To find the common ratio, divide the second term by the first term.  To **find any term** of a **geometric sequence**:***geoformula1*** where *a*1 is the first term of the sequence, *r*is the common ratio, *n*is the number of the term to find.   1. Find **the common ratio** of the sequence, 2, 6, 18, 54, … .   Write the next 3 terms.  Find the 7th term.   1. Find the 11th term of the sequence, 1, ½, ¼, … . 2. ***Geometric Means*** are terms between 2 given terms of a geometric sequence. Insert 3 geometric means between 4 and 324. |