Warm-up

$f(x) = -2x^2 - 3x + 4$ and $g(x) = -5x^2 + 7x - 2$

1. **Find 3f(x) + 2g(x)**

2. **Find g(x) – f(x)**

3. **Find g(-2)**

Go over Quiz

Arithmetic Sequence

A sequence of terms that have a common difference between them

Geometric Sequence

A sequence of terms that have a common ratio between them

Explicit Formula

Formula used to find the n^{th} term of a sequence

Explicit Formula for Arithmetic Sequence

$$a_n = a_1 + (n-1)d$$

Explicit Formula for Geometric Sequence

$$a_n = a_1(r)^{n-1}$$

Arithmetic or Geometric?

Example:

-22, -15, -8, -1, ...

Arithmetic

d = 7

Arithmetic or Geometric?

Example:

7, 4, 1, -2, -5

Arithmetic

d = -3

Arithmetic or Geometric?

Example:

256, 64, 16, 4, …

Geometric

r = 1/4

Arithmetic or Geometric?

***Example*:**

$$4, \frac{8}{3}, \frac{16}{9}, \frac{32}{81}, \ldots$$

Geometric

r = 2/3

Find the common difference, the explicit formula, and the tenth term.

3, 9, 15, 21, …

d = 6

$$a_n = a_1 + (n-1)d$$

$$a_n = 3 + (n-1)(6)$$

$a_n = 6n - 3$

$$a_{10} = 6(10) - 3$$

$a_{10} = 57$

Find the common ratio, the explicit formula, and the seventh term.

3, 1.5, 0.75, 0.375, …

$$r = \frac{1.5}{3} = 0.5$$

$$a_n = a_1 (r)^{n-1}$$

$$a_n = 3(0.5)^{n-1}$$

$$a_7 = 3(0.5)^{7-1}$$

$$a_7 = 0.046875$$

The fifth term is 1,792. The constant ratio is 4. Write the explicit formula.

$$a_5 = 1792 \text{ and } n = 5 \text{ and } r = 4$$

$$a_n = a_1 (r)^{n-1}$$

$$1792 = a_1 (4)^{5-1}$$

$$7 = a_1$$

$$\boxed{a_n = 7(4)^{n-1}}$$

Homework

Sequence Practice WS