Find the 50th term of this sequence:

-9, -1, 7, 15, ...

$a_n = -9 + (n-1)(8)$

$a_{50} = -9 + (49)(8)$

$= 383$

Given these two terms of an Arithmetic Sequence:

$a_{21} = 137$ $\quad$ $a_{25} = 161$

Find the first term.

137 ___ ___ ___ 161

$161 - 137 = 24$

$\div 4$

6

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

$a_n = a_1 + (n-1)6$

$137 = a_1 + (21-1)6$

17

Sec 11-3: Geometric Sequence

Created by multiplying each term by the same number to get the next term..

The ratio between consecutive terms is constant.

r = Common Ratio

$$r = \frac{a_n}{a_{n-1}} = \frac{\text{Any term}}{\text{Previous term}}$$

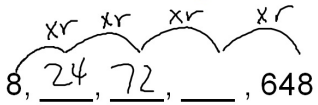
Given the following Geometric Sequence

23, x , 2783, ... Find the value of x

$\frac{x}{23} = \frac{2783}{x}$ $\quad x = 253$ or -253

+x is called the Geometric Mean of 23 and 2783.

Find the missing terms of this Geometric Sequence:



$8 \cdot r \cdot r \cdot r \cdot r = 648$

$8r^4 = 648$

$r^4 = 81$

$r =$

$\sqrt[4]{81}$

$x = 3$

Recursive Formula for a Geometric Sequence:

3.5, 7, 14, 28... Find r. 2

a_1 = First Term

$a_n = a_{n-1} \cdot r$

$a_1 = 3.5$

$a_n = a_{n-1} \cdot 2$

Write a recursive formula for this sequence:

5346, 1782, 594, 198, ...

$a_1 = 5346$

$r = \frac{1}{3}$

$a_n = a_{n-1} \cdot \frac{1}{3}$

$r = \frac{1372}{9604} = .142857\ldots$ $\frac{9604}{1372} = 7$

$r = 1/7$

9604, 1372, 196, ...

Recursive:

$a_1 = 9604$

$a_n = a_{n-1} \cdot 1/7$

Explicit Formula for a Geometric Sequence:

11, 66, 396, 2376, ... Find r. = 6

Explicit Formula:

$a_n = a_1 \cdot r^{n-1}$

$a_1 = 11$

$a_2 = 11(6)$

$a_3 = 11(6)(6)$

$a_4 = 11(6)(6)(6)$

$a_5 = 11(6)(6)(6)(6)$

.

.

.

$a_n = 11 \cdot (6)^{n-1}$

$a_1 \cdot r^{n-1}$

Write an explicit formula for this sequence.

22,032 , 3672 , 612, 102 , ...

$$a_n = 22{,}032\left(\frac{1}{6}\right)^{n-1}$$

$$r = \frac{3672}{22{,}032} = .1666$$