

Day 2

KEY

Name _____

Date _____

Class _____

LESSON

11-1

Practice A

Geometric Sequences

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

Find the common ratio of each geometric sequence. Then find the next three terms in each geometric sequence.

1. 1, 4, 16, 64, ...

common ratio: 4256, 1024, 4096

2. 10, 100, 1000, 10,000, ...

common ratio: 10100,000, 1,000,000, 10,000,000

3. 128, 64, 32, 16, ...

common ratio: $\frac{1}{2}$ 8, 4, 2

4. 4, -20, 100, -500, ...

common ratio: -52500, -12500, 62500

5. The first term of a geometric sequence is 2 and the common ratio is 4. Find the 6th term.

$$a_6 = 2(4)^{6-1}$$

2048

6. The first term of a geometric sequence is -3 and the common ratio is 2. Find the 8th term.

$$a_8 = -3(2)^{8-1}$$

-384

7. The first term of a geometric sequence is 7 and the common ratio is -2. Find the 9th term.

$$a_9 = 7(-2)^{9-1}$$

1792

8. What is the 5th term of the geometric sequence 9, 27, 81, 243, ...?

$$a_5 = 9(3)^{5-1}$$

common ratio (r): 3first term (a_1): 95th term: 729

9. What is the 13th term of the geometric sequence -2, 4, -8, 16, ...?

$$a_{13} = -2(-2)^{13-1}$$

common ratio (r): -2first term (a_1): -213th term: -8192

10. Martin got a job at a starting pay of \$8.00 per hour. His boss told him that if he works hard he can get a raise each year. The table shows Martin's wage for the first few years. Find Martin's hourly wage after 6 years. Round to the nearest cent.

common ratio (r): 1.2first term (a_1): 86th term: \$19.91

$$a_6 = 8(1.2)^{6-1}$$

Year	Hourly Wage (\$)
1	\$8.00
2	\$9.60
3	\$11.52

x 1.2

x 1.2

LESSON
11-1

Practice B
Geometric Sequences

Find the next three terms in each geometric sequence.

1. -5, -10, -20, -40, ...

-80, -160, -320

2. 7, 56, 448, 3584...

28672, 229376, 1835008

3. -10, 40, -160, 640, ...

-2560, 10240, -40960

4. 40, 10, $\frac{5}{2}$, $\frac{5}{8}$, ...

$\frac{5}{32}$, $\frac{5}{128}$, $\frac{5}{812}$

5. The first term of a geometric sequence is 6 and the common ratio is -8. Find the 7th term.

$a_7 = 6(-8)^{7-1}$

1572864

6. The first term of a geometric sequence is -3 and the common ratio is $\frac{1}{2}$. Find the 6th term.

$a_6 = -3\left(\frac{1}{2}\right)^{6-1}$

$-\frac{3}{32}$

7. The first term of a geometric sequence is -0.25 and the common ratio is -3. Find the 10th term.

$a_{10} = -0.25(-3)^{10-1}$

4920.75

8. What is the 12th term of the geometric sequence -4, -12, -36, ...? $r=3$ $a_1=-4$

$a_{12} = -4(3)^{12-1}$

-708588

9. What is the 10th term of the geometric sequence 2, -6, 18, ...? $a_1=2$ $r=-3$

$a_{10} = 2(-3)^{10-1}$

-39366

10. What is the 6th term of the geometric sequence 50, 10, 2, ...? $a_1=50$ $r=\frac{1}{5}$

$a_6 = 50\left(\frac{1}{5}\right)^{6-1}$

$\frac{2}{125}$

11. A shoe store is discounting shoes each month. A pair of shoes cost \$80. The table shows the discount prices for several months. Find the cost of the shoes after 8 months. Round your answer to the nearest cent.

Month	Price
1	\$80.00
2	\$72.00
3	\$64.80

$a_1 = 80$ $r = .9$

$a_8 = 80(.9)^{8-1}$

\$38.26