Learning Objective: Students will be able to use Euclid's Ladder to find greatest common factors of two numbers.

Warm Up

$$\begin{array}{r} 70 \\ \times\ 11 \\ \hline \end{array} \qquad \begin{array}{r} 35 \\ \times\ 52 \\ \hline \end{array} \qquad \begin{array}{r} 41 \\ \times\ 41 \\ \hline \end{array}$$

$$\begin{array}{r} 74 \\ \times\ 26 \\ \hline \end{array} \qquad \begin{array}{r} 42 \\ \times\ 93 \\ \hline \end{array} \qquad \begin{array}{r} 54 \\ \times\ 42 \\ \hline \end{array}$$

Learning Objective: Students will be able to use Euclid's Ladder to find greatest common factors of two numbers.

Warm Up Answers

$$
\begin{array}{r}
70 \\
\times\,11 \\
\hline
70 \\
700 \\
\hline
770
\end{array}
\qquad
\begin{array}{r}
35 \\
\times\,52 \\
\hline
70 \\
1{,}750 \\
\hline
1{,}820
\end{array}
\qquad
\begin{array}{r}
41 \\
\times\,41 \\
\hline
41 \\
1{,}640 \\
\hline
1{,}681
\end{array}
$$

$$
\begin{array}{r}
74 \\
\times\,26 \\
\hline
444 \\
1{,}480 \\
\hline
1{,}924
\end{array}
\qquad
\begin{array}{r}
42 \\
\times\,93 \\
\hline
126 \\
3{,}780 \\
\hline
3{,}906
\end{array}
\qquad
\begin{array}{r}
54 \\
\times\,42 \\
\hline
108 \\
2{,}160 \\
\hline
2{,}268
\end{array}
$$

Learning Objective: Students will be able to use Euclid's Ladder to find greatest common factors of two numbers.

Homework Answers

1,2   5,10

1.4 Record and Practice Journal

1 · 10

2 · 5

List the factor pairs of the number.

1. 6
$1 \cdot 6, 2 \cdot 3$

2. 7
$1 \cdot 7$

3. 10
$1 \cdot 10, 2 \cdot 5$

4. 16
$1 \cdot 16, 2 \cdot 8,$
$4 \cdot 4$

5. 35
$1 \cdot 35, 5 \cdot 7$

6. 55
$1 \cdot 55, 5 \cdot 11$

1,2,4,8,16

Write the prime factorization of the number.

7. 9
3^2

8. 24
$2^3 \cdot 3$

9. 40
$2^3 \cdot 5$

1 · 16

2 · 8

4 · 4

10. 44
$2^2 \cdot 11$
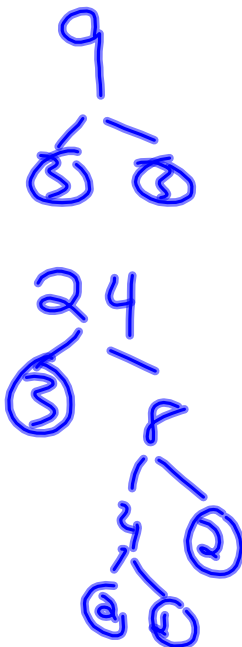
11. 50
$2 \cdot 5^2$

12. 65
$5 \cdot 13$

13. A fitness instructor arranges 30 people into rows. Each row has the same number of people.

a. Can the instructor arrange the people into rows of 6?

yes

b. Can the instructor arrange the people into rows of 9?

no

9

6   6

24

3

8

4   2

2   1

Learning Objective: Students will be able to use Euclid's Ladder to find greatest common factors of two numbers.

Lesson 1.5   September 12, 2014

Essential Question:

How can you find the greatest common factor
of two numbers?

Lesson 1.5   September 12, 2014

Lesson Objective:

Students will be able to:

use Euclid's Ladder to find greatest common factors of two numbers.

Self-Evaluation Scale

Score	Description
4	I can teach other students how to use Euclid's Ladder to find greatest common factors of two numbers.
3	I can use Euclid's Ladder to find greatest common factors of two numbers.
2	I recognize, but still need help to use Euclid's Ladder to find greatest common factors of two numbers.
1	I do not know how to use Euclid's Ladder to find greatest common factors of two numbers.

Learning Objective: Students will be able to use Euclid's Ladder to find greatest common factors of two numbers.

Euclid

(323–283 BC)

also known as Euclid of Alexandria, was a Greek mathematician, often referred to as the "Father of Geometry".

12   20

1,2,3 , 4,6,12

1,2,4   5 , 10,20

GCF 4

KISS

Learning Objective: Students will be able to use Euclid's Ladder to find greatest common factors of two numbers.

$$\frac{12}{20} = \frac{3}{5}$$

Euclid's Ladder

$$
\begin{array}{c|cc}
2 & 12 & 20 \\
\hline
2 & 6 & 10 \\
\hline
& 3 & 5
\end{array}
$$

4

$$
\begin{array}{c|cc}
7 & 14 & 35 \\
\hline
& 2 & 5
\end{array}
$$

$$2 \times 3 \overline{)36} \quad 246$$

$$3 \overline{)18} \quad 123$$

$$6 \quad 41$$

$$6$$

12   36

Learning Objective: Students will be able to use Euclid's Ladder to find greatest common factors of two numbers.

On Your Own

3 r 2 | 12   30

4   10

GCF= 6   2   5

2 | 32   54

16   27

2 r 3 r 2 | 24   108

12   54

4   18

GCF=12   2   9

17 | 51   85

3   5

2 | 14   84

7 | 7   42

1   6

3 | 39   66

13   22

Learning Objective: Students will be able to use Euclid's Ladder to find greatest common factors of two numbers.

Lesson 1.5   September 12, 2014

Essential Question:

How can you find the greatest common factor
of two numbers?

Lesson 1.5   September 12, 2014

Lesson Objective:

Students will be able to:

use Euclid's Ladder to find greatest common factors of two numbers.

Self-Evaluation Scale

Score	Description
4	I can teach other students how to use Euclid's Ladder to find greatest common factors of two numbers.
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September 12, 2014 Period 5 Lesson 1.5

Learning Objective: Students will be able to use Euclid's Ladder to find greatest common factors of two numbers.

Homework

In your Big Ideas Record and Practice Journal page 22.