

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

Warm Up

$$\begin{array}{r} 70 \\ \times 11 \\ \hline \end{array}$$

$$\begin{array}{r} 35 \\ \times 52 \\ \hline \end{array}$$

$$\begin{array}{r} 41 \\ \times 41 \\ \hline \end{array}$$

$$\begin{array}{r} 74 \\ \times 26 \\ \hline \end{array}$$

$$\begin{array}{r} 42 \\ \times 93 \\ \hline \end{array}$$

$$\begin{array}{r} 54 \\ \times 42 \\ \hline \end{array}$$

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Warm Up Answers

$$\begin{array}{r} 70 \\ \times 11 \\ \hline 70 \\ 700 \\ \hline 770 \end{array}$$

$$\begin{array}{r} 35 \\ \times 52 \\ \hline 70 \\ 1,750 \\ \hline 1,820 \end{array}$$

$$\begin{array}{r} 41 \\ \times 41 \\ \hline 41 \\ 1,640 \\ \hline 1,681 \end{array}$$

$$\begin{array}{r} 74 \\ \times 26 \\ \hline 444 \\ 1,480 \\ \hline 1,924 \end{array}$$

$$\begin{array}{r} 42 \\ \times 93 \\ \hline 126 \\ 3,780 \\ \hline 3,906 \end{array}$$

$$\begin{array}{r} 54 \\ \times 42 \\ \hline 108 \\ 2,160 \\ \hline 2,268 \end{array}$$

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Homework Answers

1.4 Record and Practice Journal

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

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

Write the prime factorization of the number.

7. 9

$$3^2$$

$$3 \cdot 3$$

8. 24

$$2^3 \cdot 3$$

$$2 \cdot 2 \cdot 2 \cdot 3$$

9. 40

$$2^3 \cdot 5$$

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

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Lesson 1.5

October 8, 2014

Essential Question:

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

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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.

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Euclid



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

GCF

Greatest Common Factor

24 - 1, 2, 3, 4, 6, 8, 12, 24

18 - 1, 2, 3, 6, 9, 18

$$\text{GCF} = 6$$

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Euclid's Ladder

A handwritten diagram of Euclid's Ladder for the numbers 12 and 20. The numbers 12 and 20 are written in blue at the top. A red vertical line is drawn to the left of them, with a red '2' and a red 'x' next to it. A red horizontal line is drawn below 12 and 20. Below this line, the numbers 6 and 10 are written in red. A second red vertical line is drawn to the left of 6 and 10, with a red '2' next to it. A second red horizontal line is drawn below 6 and 10. Below this line, the numbers 3 and 5 are written in red. A large green oval is drawn around the entire diagram.

$GCF = 4$

A handwritten diagram of Euclid's Ladder for the numbers 14 and 35. The numbers 14 and 35 are written in blue at the top. A green vertical line is drawn to the left of them, with a green '7' next to it. A green horizontal line is drawn below 14 and 35. Below this line, the numbers 2 and 5 are written in green. A large green oval is drawn around the entire diagram.

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On Your Own

$$\begin{array}{r} 2 \mid 12 \quad 30 \\ 3 \mid 6 \quad 15 \\ 2 \mid 2 \quad 5 \end{array}$$

GCF = 6

$$\begin{array}{r} 17 \mid 51 \quad 85 \\ 3 \quad 5 \end{array}$$

$$\begin{array}{r} 2 \mid 32 \quad 54 \\ 16 \quad 27 \end{array}$$

$$\begin{array}{r} 2 \mid 14 \quad 84 \\ 7 \mid 7 \quad 42 \\ 1 \quad 6 \end{array}$$

14

$$\begin{array}{r} 2 \mid 24 \quad 108 \\ 2 \mid 8 \quad 54 \\ 2 \mid 4 \quad 27 \\ 2 \quad 9 \end{array}$$

$$\begin{array}{r} 3 \mid 39 \quad 66 \\ 13 \quad 22 \end{array}$$

① 15 22

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Assignment

Complete problems 13, 15, 16, 23, 25, 26, 31, & 33
on pages 34 & 35 in your Big Ideas Text Book.

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Homework

No Homework