UNIT 1: ROOTS AND POWERS

SECTION 3.1: FACTORS AND MULTIPLES OF WHOLE NUMBERS

K. Sears
NUMBERS, RELATIONS AND FUNCTIONS 10

WHAT'S THE POINT OF TODAY'S LESSON?

G

We will begin working on the NRF 10 Specific Curriculum Outcome (SCO) "Algebra and Numbers 1" OR "AN1" which states:

"Demonstrate an understanding of factors of whole numbers by determining the prime factors, greatest common factor, least common multiple, square root and cube root."



What does THAT mean???

SCO AN1 means that we will:

- * find the prime factors of whole numbers like 8 $(2^3 \text{ or } 2 \cdot 2 \cdot 2)$
- * determine the greatest common factor (GCF) of numbers like 28 and 49 (GCF = 7)
- * determine the least common multiple (LCM) of numbers like 6 and 9 (LCM = 18)
- * determine if a given whole number is a perfect square, like 25 (5.5) or a perfect cube, like 8 (2.2.2)
- * determine the square root of perfect squares, like 36 ($\sqrt{36} = 6$), and the cube root of perfect cubes, like 64 ($\sqrt[3]{64} = 4$)

WARM UP:

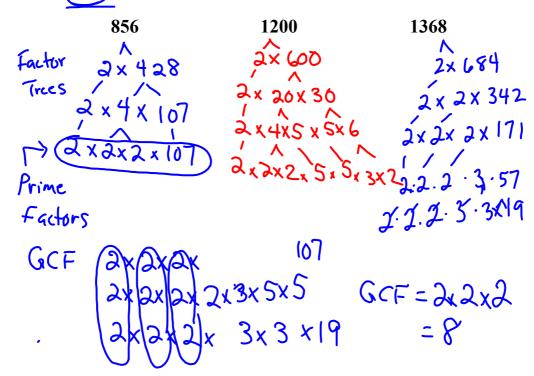
Use prime factorization to determine the

- a) GCF of 856, 1200 and 1368
- b) LCM of 28, 42 and 63

WARM UP:

Greatest Common Factor

a) GCF) of 856, 1200 and 1368:



WARM UP

LCM) Least Common Multiple

b) LCM of 28, 42 and 63:

$$GCF = 7$$

+ $LCM = 2^{2}x3^{2}x7$
= 252

WARM UP:

- 4⁺⁴ = 1 16⁺⁴ = 4 GCF
- a) What is the GCF of 340 and 380?
- b) Reduce the fraction 340 to its simplest form.

- c) What is the LCM of 340 and 380?
- d) What is $\frac{15}{340} + \frac{10}{380}$? Common = LCM denominator

340
340
380
$$2 \times 170$$
 2×190
 $2 \times 2 \times 85$
 $2 \times 2 \times 5 \times 17$
 $2 \times 2 \times 5 \times 19$

GCF = $2^2 \times 5$
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b)
$$\frac{340}{380} \stackrel{?}{-} \stackrel{?}{-} \stackrel{?}{20}$$
 = $\frac{17}{19}$

c) LCM 340 380

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VOCABULARY:

prime number: a whole number with exactly two factors,

itself and 1.

EX.: 2, 3, 5, 7, 11, 13, 17, 19, 23, and 29 are the first 10 prime numbers.

composite number: a number with three or more factors.

EX.: 8 is a composite number; it has four factors (1, 2, 4 and 8).

prime factor: a prime number that is a factor of a

number.

EX.: The prime factors of 30 are 2, 3, and 5.

prime factorization: writing a number as a product of its

prime factors.

bittom of tree EX.: The prime factorization of

20 is $2 \cdot 2 \cdot 5$ or $2^2 \cdot 5$.

CONCEPT REINFORCMENT:

"FOUNDATIONS AND PRE-CALCULUS - MATHEMATICS 10" (FPCM 10)

pages 140 / 141: #3 TO #13, #15 TO #19a and #20

15 a,c,e