

QUIZ 3.1 & 3.7

1. Write 6125 as a product of prime factors.

$$6125 = 5^3 \times 7^2$$

2. Use prime factorization to determine the GCD of 180 and 224.

$$180 = 2^2 \times 3^2 \times 5$$

$$224 = 2^5 \times 7$$

$$\text{GCF}(180, 224) = 2^2 = 4$$

3. Use prime factorization to determine the LCM of 32 and 44.

$$32 = 2^5$$

$$44 = 2^2 \times 11$$

$$\text{LCM}(32, 44) = 2^5 \times 11 = 352$$

4. Use prime factorization to simplify $\frac{1225}{2750}$ as much as possible. Show your work!

$$\frac{1225}{2750} = \frac{5^2 \times 7^2}{2 \times 5^3 \times 11} = \frac{49}{110}$$

5. Use prime factorization to determine calculate effectively $\frac{9}{10} + \frac{5}{14} + \frac{4}{21}$. Show your work!

$$10 = 2 \times 5$$

$$14 = 2 \times 7$$

$$21 = 3 \times 7$$

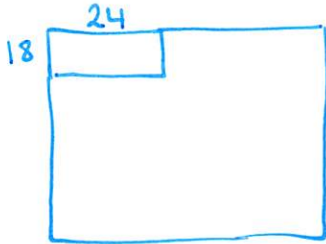
$$\frac{9}{10} + \frac{5}{14} + \frac{4}{21} = \frac{9 \times 3 \times 7}{2 \times 5 \times 3 \times 7} + \frac{5 \times 3 \times 5}{2 \times 7 \times 3 \times 5} + \frac{4 \times 2 \times 5}{3 \times 7 \times 2 \times 5}$$

$$= \frac{189}{210} + \frac{75}{210} + \frac{40}{210}$$

$$= \frac{304}{210}$$

$$= \frac{152}{105}$$

6. What are the dimensions of the smallest square that you can cover with 18 by 24 cm tiles? Assume that you can't cut the tiles, and that the dimensions of the square must be an integer.



$$\text{LCM}(18, 24) = \underline{\underline{72}}$$

$$18 = 2 \times 3 \times 3$$

$$24 = 2 \times 2 \times 2 \times 3$$

7. Expand and simplify :

a. $(x + 3)(x + 5) = x^2 + 8x + 15$ [1]

b. $(3x - 1)(5x - 3) = 15x^2 - 9x - 5x + 3$ [2]
 $= 15x^2 - 14x + 3$

c. $3(x - 5)(x + 1) + (3x - 1)^2$ [3]
 $= 3(x^2 + x - 5x - 5) + 9x^2 - 6x + 1$
 $= 3x^2 + 3x - 15x - 15 + 9x^2 - 6x + 1$
 $= 12x^2 - 18x - 14$

d. $(2x - 5)(x - 3) - (x + 2)(2x - 1)$ [3]
 $= 2x^2 - 6x - 5x + 15 - (2x^2 - x + 4x - 2)$
 $= 2x^2 - 11x + 15 - 2x^2 + x - 4x + 2$
 $= -14x + 17$