Exercises

3. List the first 6 multiples of each number.
  a) 6   **b)** 13   **c)** 22
  d) 31   **e)** 45   **f)** 27

4. List the prime factors of each number.
  a) 40   **b)** 75   **c)** 81
  d) 120   **e)** 140   **f)** 192

5. Write each number as a product of its prime factors.
  a) 45   **b)** 80   **c)** 96
  d) 122   **e)** 160   **f)** 195

B

6. Use powers to write each number as a product of its prime factors.
  a) 600   **b)** 1150
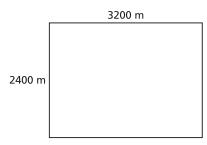 **c)** 1022   **d)** 2250
  e) 4500   **f)** 6125

7. Explain why the numbers 0 and 1 have no prime factors.

8. Determine the greatest common factor of each pair of numbers.
  a) 46, 84   **b)** 64, 120
  c) 81, 216   **d)** 180, 224
  e) 160, 672   **f)** 220, 860

9. Determine the greatest common factor of each set of numbers
  a) 150, 275, 420   **b)** 120, 960, 1400
  c) 126, 210, 546, 714   **d)** 220, 308, 484, 988

10. Determine the least common multiple of each pair of numbers.
  a) 12, 14   **b)** 21, 45
  c) 45, 60   **d)** 38, 42
  e) 32, 45   **f)** 28, 52

11. Determine the least common multiple of each set of numbers.
  a) 20, 36, 38   **b)** 15, 32, 44
  c) 12, 18, 25, 30   **d)** 15, 20, 24, 27

12. Explain the difference between determining the greatest common factor and the least common multiple of 12 and 14.

13. Two marching bands are to be arranged in rectangular arrays with the same number of columns. One band has 42 members, the other has 36 members. What is the greatest number of columns in the array?

14. When is the product of two numbers equal to their least common multiple?

15. How could you use the greatest common factor to simplify a fraction? Use this strategy to simplify these fractions.
  a) $\dfrac{185}{325}$ **b)** $\dfrac{340}{380}$ **c)** $\dfrac{650}{900}$
  d) $\dfrac{840}{1220}$ **e)** $\dfrac{1225}{2750}$ **f)** $\dfrac{2145}{1105}$

16. How could you use the least common multiple to add, subtract, or divide fractions? Use this strategy to evaluate these fractions.
  a) $\dfrac{9}{14} + \dfrac{11}{16}$ **b)** $\dfrac{8}{15} + \dfrac{11}{20}$
  c) $\dfrac{5}{24} - \dfrac{1}{22}$ **d)** $\dfrac{9}{10} + \dfrac{5}{14} + \dfrac{4}{21}$
  e) $\dfrac{9}{25} + \dfrac{7}{15} - \dfrac{5}{8}$ **f)** $\dfrac{3}{5} - \dfrac{5}{18} + \dfrac{7}{3}$
  g) $\dfrac{3}{5} \div \dfrac{4}{9}$ **h)** $\dfrac{11}{6} \div \dfrac{2}{7}$

17. A developer wants to subdivide this rectangular plot of land into congruent square pieces. What is the side length of the largest possible square?

3200 m

2400 m

18. Do all whole numbers have at least one prime factor? Explain.

19. **a)** What are the dimensions of the smallest square that could be tiled using an 18-cm by 24-cm tile? Assume the tiles cannot be cut.
  b) Could the tiles in part a be used to cover a floor with dimensions 6.48 m by 15.12 m? Explain.