Marian Catholic High School
Math Applications
Summer Problems

Name: _____

A. Identify the pattern in the following problems. Then use this pattern to find the next number:

1. 3, 9, 27, 81, 243   **2**. 1, 2, 4, 8, 16

B. Estimation:

3. Estimate the cost of 12 bananas at $0.19 each**.**

4. Estimate the total weight of four people if their individual weights are 137 pounds, 146 pounds, 172 pounds, and 197 pounds.

C. Find the prime factorization of the following numbers.

5. 56   **6.** 48   **7.** 108

D. Determine the greatest common factor between the given pairs of numbers.

8. 16 and 42   **9.** 25 and 70   **10**. 66 and 90

E. Perform the indicated subtraction.

11. 4 - (-10)   **12**. -12 - (-3)   **13**. 9 - 20

F. Find each product.

14. (-8)(-5)   **15.** (-3)(10)   **16.** (-17)(-1)

G. Express each rational number as a decimal.

17. $\dfrac{3}{5}$ **18.** $\dfrac{7}{8}$ **19.** $\dfrac{5}{16}$

H. Perform the indicated operation, if possible reduce to lowest terms.

20. $\left(\dfrac{5}{4}\right)\left(\dfrac{6}{7}\right)$ **21.** $\left(\dfrac{5}{4}\right)\div\left(\dfrac{3}{8}\right)$ **22.** $\dfrac{13}{18}-\dfrac{2}{9}$

I. Simplify the square root.

23. $\sqrt{20}$ 24. $\sqrt{80}$ 25. $\sqrt{250}$

J. Use properties of exponents to simplify each expression. First express the answer in exponential form. Then evaluate the expression.

26. $2^2 x 2^3$ **27.** $\left(2^2\right)^3$ 28. $4 \text{ x } 4^2$

K. Solve each equation.

29. $5x + 3 = 18.$ **30**. $5x - (2x - 10) = 35$

L. The formula $\dfrac{c}{2} + 80 = 2F$ **models the relationship between temperature, F, in degrees Fahrenheit, and the number of cricket chirps per minute. Use this method to solve exercises 31 and 32.**

31. Find the number of chirps per minute at a temperature of 70.0° F.

32. Find the number of chirps per minute at a temperature of 80.0° F

M. Solve each proportion.

33. $\left(\dfrac{24}{x}\right) = \left(\dfrac{12}{7}\right)$

34. $\left(\dfrac{-3}{8}\right) = \left(\dfrac{x}{40}\right)$

35. $\left(\dfrac{x}{32}\right) = \left(\dfrac{3}{24}\right)$

36. To estimate the number of bass in a lake, wildlife biologists tagged 50 bass and released them in the lake. Later they netted 108 bass and found that 27 of them were tagged. Approximately how many bass are in the lake?

N. Use *FOIL* to find the product of the following.

37. $(x + 9)(x - 5)$

38. $(4x - 7)(3x + 2)$