What is MATH 204?

MATH 204 is a 200-level college level class designed for students pursuing Education. (Note that most programs which require MATH 204 [mostly about Arithmetic] also require MATH 205 [mostly about Geometry]. These classes may be taken in either order.) Much of the material in the course is familiar, but the level of understanding required is probably more rigorous than what you have encountered. Students with weak reading skills should consider taking an appropriate ENG course before or possibly simultaneous with this course.

I need MATH 204. Am I ready?

So, you've learned that you need or want to take MATH 204. This is a brief assessment to help you decide if you should take the class. It's also a good idea to talk with an advisor before making your decision.

- If you feel confident that you could correctly address 4 or more of these exercises, then enroll in only MATH 204.
- If you feel less confident or think that you could only address 2 or 3 exercises correctly, then you may need some supplemental help when you enroll in MATH 204.
- If you feel more worried or think that you could address fewer than 2 exercises, then you should consider enrolling in a preliminary class such as MATH 101 or MATH 116. Please explore the MATH 101 and MATH 116 guides.

1. How many terms are in each sequence?
    a. $13, 14, 15, 16, \dots, 25$
    b. $10, 15, 20, 25, \dots, 100$
    c. $3, 6, 12, 24, 48, \dots, 3072$

2. In a class of 30 students, 13 wore red shirts, 18 wore blue pants, and 7 wore red shirts and blue pants. How many students wore neither red shirts nor blue pants?

3. Carl Friedrich Gauss found the sum $1 + 2 + 3 + \dots + 99 + 100$ by adding this sum to itself, but reversed. So, he reasoned that

$$
\begin{array}{rrrrrrrrrrr}
& \text{SUM} & = & 1 & + & 2 & + & 3 & + \dots + & 99 & + & 100 \\
\text{and} & \text{SUM} & = & 100 & + & 99 & + & 98 & + \dots + & 2 & + & 1 \\
\text{so that} & 2 * \text{SUM} & = & 101 & + & 101 & + & 101 & + \dots + & 101 & + & 101
\end{array}
$$

which meant that twice his sum was $101 * 100$ and that his original sum was 5050. Use Gauss' technique to find the sum $1 + 2 + 3 + \dots + 199 + 200$.

4. Can you explain why every integer is considered a rational number?

5. The Mayans used a dot ($\cdot$) to represent 1 and a bar ($-$) to represent 5. What number is represented below?

$$\overset{\cdots}{\underset{\displaystyle =}{}}$$

6. In the base five system, 412_{five} indicates two units, one five, and four squares of five, so $412_{\text{five}} = 4 * 5^2 + 1 * 5 + 2 = 107$. Find the sum $123_{\text{five}} + 42_{\text{five}}$.

7. A student was subtracting and wrote the following. Could you correctly find the difference? Could you convince this student that a mistake has been made? What mistake did the student make? How would you help this student avoid this error in the future?

$$\begin{array}{r} 5\,2\,7 \\ -\ 1\,8\,3 \\ \hline 4\,4\,3 \end{array}$$