FTC 3 Name _____
Grade: 3rd

Show all of your work. All work and explanations should be YOUR OWN WORK and not that of AI, a google search, or another human helping you. Use additional paper if necessary.

1. (3pts) A student is struggling to memorize their multiplication facts for 4 asks if he can just "**double double**" each time to get the answer. For example: 4x5 would be "**double** 5 to get 10 then **double** 10 to get 20." Is this a correct technique that will always work for multiplying by 4? If it works, explain mathematically why. If it does not always work, show an example where it fails.

2. (4pts) Find the missing terms and explain the pattern. Label each as arithmetic, geometric, or neither.

   a. 12, 15, 21, 30, 42, _____, _____

   b. 8, 4, 2, 1, _____, _____

3. (3pts) You show this shape of unit cubes and ask the class to find the perimeter. A student raises her hand and says 16. Where did the student go wrong? Explain how you would help her find her mistake.

