

## Skills Exercises

Create a set of multiple-choice questions for whole number, fraction and decimal addition, subtraction, multiplication, and division that include distracters generated by using typical error patterns for the respective problem type.

Develop at least 2 alternate ways of doing any given arithmetic problem that involves using a rule for addition, subtraction, multiplication, and division of whole numbers.

List at least 3 sources of “unusual” exercises that could be used to provide basic skill practice for students.

Describe at least two games that could be used to provide basic skill drill for GED students.

Do  $16,873 \div 47$  using long division. List all the potential problem areas or places where errors could be made.

Describe the reading difficulties that would be associated with  $6\frac{4}{5} - 3\frac{7}{8}$ , carrying the discussion through to the answer of  $2\frac{37}{40}$ .

Create a word problem that would appeal to a student in a GED mathematics setting.

Describe how the concept of number has evolved through the ages.

Trace the evolution of place value systems.

Describe the development of zero from its rudimentary conceptualizations through how we write it today.

Document the beginning of fractions and how they were used in early computations. Be sure to investigate computation involving unit fractions.

Document the beginning of decimals and how they were used in early computations.

Describe the development of negative numbers and how they were used in early computations.

Investigate regular polygons. How did the names originate? How were they constructed?

## Skills Exercises

Research at least one of the following topics and prepare a written summary of its development: Egyptian pyramids, golden section, golden ratio, Fibonacci numbers, networks, twisted surfaces, computational short cuts, percent, or measurement.

Visualize a checkerboard. Assuming you can travel only up or right, and only along sides of the little squares, turning or going straight through any small square's corner, how many different routes are available to go from the lower left corner of the board to the upper right corner of the board? Believe it or not, there are 12,870 different routes that could be taken. Check it out!

### References

Brumbaugh, D. K., Ortiz, E., Gresham, G. (2006). *Teaching Middle School Mathematics*. Mahwah, NJ: Lawrence Erlbaum Associates.

Brumbaugh, D., Rock, D. (2001). *Scratch Your Brain C1*. Pacific Grove, CA: Critical Thinking Books and Software.