Arithmetic

This test measures your ability to perform basic arithmetic operations and to solve problems that involve fundamental arithmetic concepts. There are 17 questions on the Arithmetic tests, divided into three types.

- Operations with whole numbers and fractions: Topics included in this category are addition, subtraction, multiplication, division, recognizing equivalent fractions and mixed numbers, and estimating.

- Operations with decimals and percents: Topics include addition, subtraction, multiplication, and division with decimals. Percent problems, recognition of decimals, fraction and percent equivalencies, and problems involving estimation are also given.

- Applications and problem solving: Topics include rate, percent, and measurement problems; simple geometry problems; and distribution of a quantity into its fractional parts.

Arithmetic Sample Questions

Solve the following problems and select your answer from the choices given. You may use the paper you have been given for scratch paper.

1. \(2.75 + .003 + .158 =\)
   A. 4.36
   B. 2.911
   C. 0.436
   D. 2.938

2. \(7.86 \times 4.6 =\)
   A. 36.156
   B. 36.216
   C. 351.56
   D. 361.56

3. \(\frac{7}{20} =\)
   A. 0.035
   B. 0.858
   C. 0.35
   D. 3.5

4. Which of the following is the least?
   A. 0.105
   B. 0.501
   C. 0.015
   D. 0.15

5. All of the following are ways to write 25 percent of N EXCEPT
   A. \(0.25 N\)
   B. \(\frac{25N}{100}\)
   C. \(\frac{1}{4} N\)
   D. \(25 N\)

6. Which of the following is closest to \(27.8 \times 9.6?\)
   A. 280
   B. 300
   C. 2,800
   D. 3,600

7. A soccer team played 160 games and won 65 percent of them. How many games did it win?
   A. 94
   B. 104
   C. 114
   D. 124

8. Three people who work full-time are to work together on a project, but their total time on the project is to be equivalent to that of only one person working full-time. If one of the people is budgeted for one-half of his time to the project and a second person for one-third of her time, what part of the third worker's time should be budgeted to this project?
   A. \(\frac{1}{3}\)
   B. \(\frac{1}{5}\)
   C. \(\frac{1}{6}\)
   D. \(\frac{1}{6}\)

9. 32 is 40 percent of what number?
   A. 12.8
   B. 128
   C. 80
   D. 800

10. \(3\frac{1}{3} - 2\frac{2}{5} =\)
    A. 1\(\frac{1}{3}\)
    B. \(\frac{1}{3}\)
    C. \(\frac{14}{15}\)
    D. \(\frac{11}{15}\)
Elementary Algebra

A total of 12 questions of three types are administered in this test.

- The first type involves operations with integers and rational numbers, and includes computation with integers and negative rationals, the use of absolute values, and ordering.

- The second type involves operations with algebraic expressions using evaluation of simple formulas and expressions, and adding and subtracting monomials and polynomials. Questions involve multiplying and dividing monomials and polynomials, the evaluation of positive rational roots and exponents, simplifying algebraic fractions, and factoring.

- The third type of question involves translating written phrases into algebraic expressions and solving equations, inequalities, word problems, linear equations and inequalities, quadratic equations (by factoring), and verbal problems presented in an algebraic context.

Elementary Algebra Sample Questions

Solve the following problems and select your answer from the choices given. You may use the paper you have been given for scratch paper.

4. In the figure below, both circles have the same center, and the radius of the larger circle is $R$. If the radius of the smaller circle is 3 units less than $R$, which of the following represents the area of the shaded region?

A. $\pi R^2$
B. $\pi (R - 3)^2$
C. $\pi R^2 - \pi \times 3^2$
D. $\pi R^2 - \pi (R - 3)^2$

5. $(3x - 2y)^2 -$

A. $9x^2 - 4y^2$
B. $9x^2 + 4y^2$
C. $9x^2 + 4y^2 - 6xy$
D. $9x^2 + 4y^2 - 12xy$

6. If $x > 2$, then $\frac{e^{x} - x - 6}{x - 4} =$

A. $\frac{x - 3}{2}$
B. $\frac{x - 3}{x - 2}$
C. $\frac{x - 3}{x + 2}$
D. $\frac{3}{2}$

7. $\frac{4 - 160}{-5} =$

A. $\frac{2}{5}$
B. $-\frac{4}{5}$
C. 2
D. $-2$

8. If $2x - 3(x + 4) = -5$, then $x =$

A. 7
B. -7
C. 17
D. -17

9. $-3(5 - 6) - 4(2 - 3) =$

A. -7
B. 7
C. -1
D. 1

10. Which of the following expressions is equivalent to $20 - \frac{4}{5} x \geq 16$?

A. $x \leq 5$
B. $x \geq 5$
C. $x \geq 32\frac{1}{2}$
D. $x \leq 32\frac{1}{2}$

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### ARITHMETIC

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### ELEMENTARY ALGEBRA

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