BASIC ARITHMETIC and BASIC ALGEBRA ASSESSMENT SAMPLE

You have up to 1 hour to complete **50 multiple choice questions**.
Calculators and dictionaries are NOT allowed.

BASIC ARITHMETIC SAMPLE (25 questions)

PART A - Whole numbers

1. Add: 39,437 + 127,648 + 7,056 — 1. _____
2. Subtract: 19,820 from 209,327 — 2. _____
3. Multiply: 5,064 X 327 — 3. _____
4. Divide: 46,428 ÷ 876 — 4. _____
5. Round off to the nearest hundred: 74,863 — 5. _____

PART B - Fractions

1. Supply the missing term: $\frac{7}{8} = \frac{?}{48}$ — 1. _____
2. Reduce to lowest terms: $\frac{42}{54}$ — 2. _____
3. Find the largest fraction: $\frac{9}{14}, \frac{9}{13}, \frac{9}{15}$ — 3. _____
4. Add: $\frac{5}{12} + \frac{4}{9}$ — 4. _____
5. Subtract: $4\frac{7}{8} - 2\frac{1}{6}$ — 5. _____
6. Multiply: $12 \times \frac{3}{4}$ — 6. _____
7. Divide: $\frac{7}{24} \div \frac{21}{8}$ — 7. _____

PART C - Decimals

1. Write as a fraction in lowest terms : .75 — 1. _____
2. Write $\frac{5}{8}$ as a decimal. — 2. _____
3. Round off to the nearest hundredths: 7432.04816 — 3. _____
4. Add: 700 + .059 + 3.1 — 4. _____
5. Subtract: 89.4 - 8.94 — 5. _____
6. Multiply: 5.63 X .03 — 6. _____
7. Divide: 3.151 ÷ 2.3 — 7. _____

PART D - Per Cent

1. Express 84% as a fraction in lowest terms: 1. _____

2. Express 8½% as a decimal numeral: 2. _____

3. Express $\frac{18}{25}$ as a per cent: 3. _____

4. In a class of 50 students, 15 students have brown hair. What is the per cent of brown-haired students in the class? 4. _____

5. A store had a sale with 20% off on all items. How much would you pay for a picture which had a regular price of $80? 5. _____

6. A 5% sales tax on an item is $.75. Find the price of the item. 6. _____

Answer key for Basic Arithmetic

PART A	PART B	PART C	PART D
1. 174,141	1. $\frac{7}{8} = \frac{42}{48}$	1. $\frac{3}{4}$	1. $21/25$
2. 189,507	2. $7/9$	2. .625	2. .085
3. 1,655,928	3. $9/13$	3. 7432.05	3. 72%
4. 53	4. $31/36$	4. 703.159	4. 30%
5. 74,900	5. $2\,17/24$	5. 80.46	5. $64
	6. 9	6. .1689	6. $15
	7. $1/9$	7. 1.37	

BASIC ALGEBRA SAMPLE (25 questions)

PART A - Basic Concepts

Choose the letter of the correct answer and place it in the blank space at the right.

1. {0,1,2,3,4,.....} is called the set of:
   a) natural numbers b) arithmetic numbers
   c) integers d) whole numbers 1. _____

2. Which one of the following is FALSE ?
   a) 3 > -2 b) 6 + (-2) > 6 + (-1)
   c) -5 < -1 d) $|-7| = 7$ 2. _____

3. The reciprocal of $3\frac{3}{4}$ is:

   a) $-3\frac{3}{4}$ b) $\frac{4}{9}$ c) $\frac{15}{4}$ d) $\frac{4}{15}$ 3. _____

4. For which one of the following is the answer NOT equal to 0:

   a) 0^5 b) 5 x 0 c) $\frac{5}{0}$ d) $\frac{0}{5}$ 4. _____

5. What does x^3 represent if x = 2?

   a) 2 • 2 •2 b) 2 + 3 c) 2 x 3 d) 2 + 2 + 2 5. _____

PART B - Operations with algebraic expressions - Signed Numbers

Perform the indicated operations:

1. -5 + (-7) = _____ 2. -2 - (-9) = _____

3. (-3) • $(-2)^2$ = _____ 4. 3[2 - (3 • 4 - 15)] + 5 = _____

5. $\frac{10.(-3)}{(-15)}$ = _____

6. Evaluate if x = 5 and y = -2: 4x + 3y = 6. _____

7. Collect like terms: 4x - y + 8 + 3y - 2x - 4 = 7. _____

8. Remove brackets and collect like terms:

   (2x - 3y) + 3(x + y) - (4x - 5y) 8. _____

9. Multiply: $x(3x^2 + 4x - 5)$ 9. _____

10. Factor: 4a + 12 10. _____

PART C - Solving equations

Solve the following equations for "x" showing all necessary steps:

1. $5x + 2 = 17$ 1. _____

2. $4x + 3(x + 2) = 20$ 2. _____

3. $\frac{1}{3}x + \frac{1}{5}x = 8$ 3. _____

4. $6x - 4 = 2x + 12$ 4. _____

5. $\frac{x}{3} = \frac{12}{18}$ 5. _____

PART D - Solving word problems using equations

1. Twice a number is subtracted from 5 and the result is 10. Pick the correct equation to find the number.

   a) $x^2 - 5 = 10$ b) $5 - 2x = 10$

   c) $2x - 5 = 10$ d) $5 - x^2 = 10$

2. A man is three times as old as his daughter. The sum of their ages is 52. Pick the correct equation to find their ages.

   a) $x^3 + x = 52$ b) $x + x + 3 = 52$

   c) $x + 3x = 52$ d) $3(x+ x) = 52$

3. If a number is increased by 20% the result is 70. Pick the correct equation to find the number.

   a) $x + .02x = 70$ b) $x + .2x = 70$

   c) $x + 20x = 70$ d) $x + 20 = 70$

4. The perimeter of a picture frame is 34 inches. Pick the correct equation to find the dimensions of the frame if the length of the frame is 3 inches more than the width.

   a) $x + 3x = 34$ b) $x + x + 3 = 34$

   c) $x + x + 3 = 17$ d) $2x + 2x + 3 = 34$

5. The sum of three consecutive integers is 105. Pick the correct equation to find the numbers.

   a) $x + 2x \div 3x = 105$ b) $3x = 105$

   c) $x + x + 1 + x + 2 = 105$ d) $x + 3 = 105$

Answer key for Basic Algebra

PART A	PART B	PART C	PART D
1. d	1. –12	1. x = 3	1. b
2. b	2. 7	2. x = 2	2. c
3. d	3. –12	3. x = 15	3. b
4. c	4. 20	4. x = 4	4. c
5. a	5. 2	5. x = 2	5. c
	6. 14		
	7. 2x + 2y + 4		
	8. x + 5y		
	9. $3x^3 + 4x^2 - 5x$		
	10. 4a + 12 = 4(a + 3)		