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: $\dfrac{7}{8} = \dfrac{?}{48}$

1. _____

2. Reduce to <u>lowest</u> terms: $\dfrac{42}{54}$

2. _____

3. Find the <u>largest</u> fraction: $\dfrac{9}{14}, \dfrac{9}{13}, \dfrac{9}{15}$

3. _____

4. Add: $\dfrac{5}{12} + \dfrac{4}{9}$

4. _____

5. Subtract: $4\dfrac{7}{8} - 2\dfrac{1}{6}$

5. _____

6. Multiply: $12 \times \dfrac{3}{4}$

6. _____

7. Divide: $\dfrac{7}{24} \div \dfrac{21}{8}$

7. _____

PART C - Decimals

1. Write as a fraction in <u>lowest</u> terms : .75

1. _____

2. Write $\dfrac{5}{8}$ 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 <u>lowest</u> terms: 1. _____

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

3. Express $\dfrac{18}{25}$ 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. $\dfrac{7}{8} = \dfrac{42}{48}$	1. $\dfrac{3}{4}$	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	

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 <u>FALSE</u> ?
   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 <u>NOT</u> equal to 0:

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

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

   a) $2 \cdot 2 \cdot 2$ b) $2 + 3$ c) 2×3 d) $2 + 2 + 2$ 5. _____

PART B - Operations with algebraic expressions - Signed Numbers
Perform the indicated operations:

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

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

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. $5x + 2 = 17$

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

3. $\dfrac{1}{3}\,x + \dfrac{1}{5}\,x = 8$

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

5. $\dfrac{x}{3} = \dfrac{12}{18}$

1. _____

2. _____

3. _____

4. _____

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. $4a + 12 = 4(a + 3)$		