

### Numerical Skills/Pre-algebra

1.  $54 - 6 \div 2 + 6 = ?$

- A. 6
- B. 24
- C. 27
- D. 30
- E. 57

2. The lowest temperature on a winter morning was  $-8^{\circ}\text{F}$ . Later that same day the temperature reached a high of  $24^{\circ}\text{F}$ . By how many degrees Fahrenheit did the temperature increase?

- A.  $3^{\circ}$
- B.  $8^{\circ}$
- C.  $16^{\circ}$
- D.  $24^{\circ}$
- E.  $32^{\circ}$

3. If  $\left(\frac{3}{4} - \frac{2}{3}\right) + \left(\frac{1}{2} + \frac{1}{3}\right)$  is calculated and the answer reduced to simplest terms, what is the denominator of the resulting fraction?

- A. 24
- B. 12
- C. 6
- D. 4
- E. 3

4.  $\frac{1}{2} + \left(\frac{2}{3} \div \frac{3}{4}\right) - \left(\frac{4}{5} \times \frac{5}{6}\right) = ?$

- A.  $\frac{1}{16}$
- B.  $\frac{17}{27}$
- C.  $\frac{13}{18}$
- D.  $\frac{7}{9}$
- E.  $\frac{5}{6}$

5. Mr. Brown went grocery shopping to buy meat for his annual office picnic. He bought  $7\frac{3}{4}$  pounds of hamburger, 17.85 pounds of chicken, and  $6\frac{1}{2}$  pounds of steak. How many pounds of meat did Mr. Brown buy?
- A. 32.10
  - B. 31.31
  - C. 26.25
  - D. 22.10
  - E. 21.10
6. Four students about to purchase concert tickets for \$18.50 for each ticket discover that they may purchase a block of 5 tickets for \$80.00. How much would each of the 4 save if they can get a fifth person to join them and the 5 people equally divide the price of the 5-ticket block?
- A. \$ 1.50
  - B. \$ 2.50
  - C. \$ 3.13
  - D. \$10.00
  - E. \$12.50
7. In scientific notation,  $20,000 + 3,400,000 = ?$
- A.  $3.42 \times 10^6$
  - B.  $3.60 \times 10^6$
  - C.  $3.42 \times 10^7$
  - D.  $3.60 \times 10^7$
  - E.  $3.60 \times 10^{12}$
8. Saying that  $4 < \sqrt{x} < 9$  is equivalent to saying what about  $x$  ?
- A.  $0 < x < 5$
  - B.  $0 < x < 65$
  - C.  $2 < x < 3$
  - D.  $4 < x < 9$
  - E.  $16 < x < 81$

9. What value of  $x$  solves the following proportion?

$$\frac{9}{6} = \frac{x}{8}$$

- A.  $5\frac{1}{3}$   
B.  $6\frac{3}{4}$   
C.  $10\frac{1}{2}$   
D. 11  
E. 12
10. If the total cost of  $x$  apples is  $b$  cents, what is a general formula for the cost, in cents, of  $y$  apples?
- A.  $\frac{b}{xy}$   
B.  $\frac{x}{by}$   
C.  $\frac{xy}{b}$   
D.  $\frac{by}{x}$   
E.  $\frac{bx}{y}$
11. On a math test, 12 students earned an A. This number is exactly 25% of the total number of students in the class. How many students are in the class?
- A. 15  
B. 16  
C. 21  
D. 30  
E. 48
12. This year, 75% of the graduating class of Harriet Tubman High School had taken at least 8 math courses. Of the remaining class members, 60% had taken 6 or 7 math courses. What percent of the graduating class had taken fewer than 6 math courses?
- A. 0%  
B. 10%  
C. 15%  
D. 30%  
E. 45%

13. Adam tried to compute the average of his 7 test scores. He mistakenly divided the correct sum of all of his test scores by 6, which yielded 84. What is Adam's correct average test score?
- A. 70
  - B. 72
  - C. 84
  - D. 96
  - E. 98
14. A total of 50 juniors and seniors were given a mathematics test. The 35 juniors attained an average score of 80 while the 15 seniors attained an average of 70. What was the average score for all 50 students who took the test?
- A. 73
  - B. 75
  - C. 76
  - D. 77
  - E. 78

## Answers

### Correct Answers for Sample Numerical Skills/Pre-algebra Questions

Item Number	Correct Answer	Content Category
1	E	Operations with Integers
2	E	Operations with Integers
3	B	Operations with Fractions
4	C	Operations with Fractions
5	A	Operations with Decimals
6	B	Operations with Decimals
7	A	Exponents
8	E	Exponents
9	E	Ratios and Proportions
10	D	Ratios and Proportions
11	E	Percentages
12	B	Percentages
13	B	Averages
14	D	Averages