Arithmetic/Algebra Readiness Sample Test

Topic I — Numerical Operations

1. Simplify: $3 \cdot 5 + 4 \cdot 5$
   a) 95 b) 135 c) 35 d) 17

2. $(3\times10^5)(2\times10^1)$
   a) 6×100^6 b) 6×10^5 c) 6×10^6 d) 5×20^6

3. A certain baseball team wins on the average 6 out of every 8 games it plays. If the team is to play 72 games, what is the most probable number of wins?
   a) 12 b) 54 c) 36 d) 48

4. If a light on a buoy makes one revolution every 10 seconds, how many revolutions does the light make in one hour?
   a) 360 b) 36 c) 60 d) 600

5. It takes 18 minutes for a certain bacteria population to triple. At 8:30 a.m., the bacteria count was 4,010,000. What is the best estimate (in millions of units) of the population at 9:06 a.m. on the same morning?
   a) 120,000,000 b) 36 c) 120,000 d) 12

6. Sarah has $290 in her account. She writes checks for $101 and $78 and then makes a deposit of $180. Find the amount left in her account.
   a) $291 b) $289 c) $191 d) $189

7. $2.41095 - 0.1993 = ?$
   a) 2.6102 b) 2.21165 c) 2.39102 d) 2.39165

8. $(2\frac{1}{4})(3\frac{1}{3}) = ?$
   a) $\frac{15}{2}$ b) $\frac{30}{12}$ c) 6 d) $\frac{27}{40}$

9. $5.2 \div .004 = ?$
   a) 1.3 b) 13.0 c) 130 d) 1300

10. $3\frac{5}{8} - 1\frac{11}{16} = ?$
    a) $1\frac{5}{16}$ b) $1\frac{15}{16}$ c) 2 d) $2\frac{1}{16}$

11. $\frac{2}{3} \bullet \frac{15}{16} = ?$
    a) $\frac{17}{18}$ b) $\frac{32}{45}$ c) $1\frac{3}{5}$ d) $\frac{5}{8}$

12. Martin ran the 50 meter race on four occasions. His times were: .

9.60 sec	9.00 sec	10.30 sec	9.30 sec

Find Martin's average time.
a) 9.30 sec b) 9.55 sec c) 9.60 sec d) 9.35 sec

Topic II — Operations with Percentages

13. What is 86% of 8000?
    a) 68 b) 6880 c) 80000 d) 1200

14. 15 is what percent of 5?
    a) 3% b) 300% c) $33\frac{1}{3}\%$ d) $3\frac{1}{3}\%$

15. Mary's salary was increased by 10%. She now earns $1650. What did she earn before the increase?
    a) $1500 b) $1485 c) $1815 d) $1525

16. A sporting goods store has a tennis racket on sale for $60. This is 80% of its original price. What was the original price?
    a) $108 b) $68 c) $7 d) $75

17. An automobile tire costs $44.50 plus a sales tax of 8%. What is the total cost the customer will pay for the tire?
    a) $47.46 b) $48.46 c) $52.50 d) $48.06

18. In December a sweater sold for $50. In January, it was on sale for $40, What was the percentage decrease?
    a) 10% b)20% c) 25% d)40%

Topic III — Operations with Signed Numbers

19. What number divided by -5 gives 9 as an answer?
    a) 45 b) -45 c) 9 d) -9

20. $4 - 7 - 2 + 1 = ?$
    a) 6 b) 3 c) -4 d) 2

21. Put these fractions in order from largest to smallest:
    $\frac{1}{2}$, .3, $\frac{7}{10}$, $\frac{4}{5}$
    a) $\frac{7}{10}, \frac{4}{5}, .3, \frac{1}{2}$ b) $\frac{4}{5}, \frac{7}{10}, .3, \frac{1}{2}$
    c) $.3, \frac{1}{2}, \frac{7}{10}, \frac{4}{5}$ d) $\frac{4}{5}, \frac{7}{10}, \frac{1}{2}, .3$

22. What is the distance on the number line from -10 to 7?
    a) 10 b) 7 c) 17 d) -3

23. The temperature rose from a low of -12°F to a high of 23°F at noon. What was the increase in temperature?
    a) 23°F b) 13°F c) 11°F d) 35°F

24. $2-(4-5) = ?$
    a) 3 b) -7 c) 1 d) 2

25. $(0)(5) = ?$
    a) 0 b) 5 c) not defined d) $\frac{0}{5}+1$

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26. $(-2)(-3)+4(5-7)$ = ?
a)-18 b)-3 c) –20 d)-2

Topic IV — Simplifying Expressions and Solving Equations

27. The prime factorization of 28 is ?
a) 4 x 7 b) 2 x 2 x 7 c) 7 d) 2 x 2

28. $(2^4)(2^5)$ = ?
a) 2^{20} b) 4^9 c) 2^9 d) 4^{20}

29. Find the least common multiple of 9 and 15.
a) 3 b) 9 c) 135 d) 45

30. $(.3)^2+(.03)^2$ = ?
a) .099 b) .9900 c) .0909 d) .9090

31. Simplify: $5(2-x)$
a) $10x$ b) $10-x$ c) $10-5x$ d) $-10x$

32. If $5x+2y=18$ and if $x=2$, then y = ? ?
a) 18 b) 10 c) 4 d) 2

33. If $x=3$, then $\frac{6}{x}+2$ = ?
a) 4 b) 8 c) 2 d) 5

34. Simplify: $\frac{4xy}{6yz}$
a) $\frac{4y}{z}$ b) $\frac{x}{6z}$ c) $\frac{2xy}{3z}$ d) $\frac{2x}{3z}$

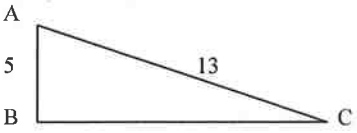
35. If $\sqrt{x}=16$, then x = ?
a) 4 b) 16 c) 64 d) 256

Topic V — Geometric Applications

36. A rectangle has a perimeter of 32 inches and a width of 4 inches. Find the length of the rectangle.
a)8 in b)12 in c)16 in d) 24 in

37. A circle has a radius of 8 inches. What is the area of the circle?
a) 8π in² b) 16π in² c) 64π in² d) 64 in²

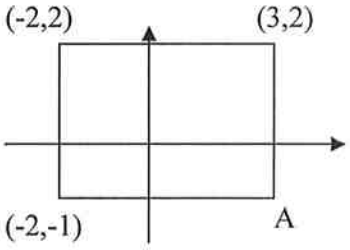
38. In right triangle ABC shown below, find the length of side BC.



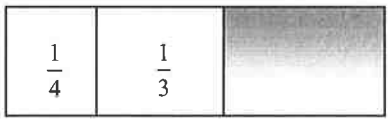
a) 5 b) 13 c) 12 d) 18

39. How much carpet is needed to cover the floor of a room that has dimensions of 12 yd by 24 yd?
a) 288 sq yd b) 32 sq yd c) 80 sq yd d) 144 sq yd

40. A rectangle is drawn on a plane. What are the coordinates of point A.
a) (3,1) b) (-1,3)
c) (3,-2) d) (3,-1)



41. What fractional part of the rectangular rod is shaded?
a) 5/7 b) 5/12
c) 5/6 d) 7/12



AR - Arithmetic/Algebra Readiness Sample Test Evaluation
(Places into Math 260 - Math 101)

Problem #	Your Answer	Correct Answer	Topic
1		c	Order of Operations - Whole Numbers
2		c	Operations with Scientific Notation
3		b	Ratios
4		a	Ratios/Conversions
5		b	Estimation
6		a	Checking Account Word Problem
7		b	Operations with Decimals - Subtraction
8		a	Operations with Fractions - Multiplication
9		d	Operations with Decimals - Division
10		b	Operations with Fractions - Subtractions/Mixed Numbers
11		d	Operations with Fractions - Multiplication
12		b	Descriptive Statistics - Average/Mean
13		b	Percentage
14		b	Percentage
15		a	Percent Increase
16		d	Percent Decrease
17		d	Percent - Tax
18		b	Percent Decrease
19		b	Operations with Signed Numbers
20		c	Operations with Signed Numbers
21		d	Order Fractions/Decimals
22		c	Number Line
23		d	Operations with Signed Numbers
24		a	Operations with Signed Numbers
25		a	Operations with Zero
26		d	Operations with Signed Numbers
27		b	Prime Factorization
28		c	Exponents
29		d	Least Common Multiple
30		c	Exponents
31		c	Simplify Algebraic Expression
32		c	Solve Algebraic Equation
33		a	Solve Algebraic Equation
34		d	Simplify Algebraic Expression
35		d	Square Root
36		b	Perimeter
37		c	Area
38		c	Pythagorean Theorem
39		a	Area
40		d	Coordinate Plane
41		b	Fractional Part

Problem #	1) What concepts, formulas, definitions, etc. does one need to have at hand when successfully solving this problem? 2) Where did you find this information?