Practice Set 2

1. Allison purchased 7 bags of oranges at $0.49 per bag. How much change should she receive from a $10 bill?

    (A) $1.57
    (B) $3.43
    (C) $5.43
    (D) $6.57
    (E) $7.57

2. $\left(\dfrac{1}{5}+\dfrac{1}{3}\right)\div\dfrac{1}{2} =$

    (A) $\dfrac{1}{8}$

    (B) $\dfrac{1}{4}$

    (C) $\dfrac{4}{15}$

    (D) $\dfrac{1}{2}$

    (E) $\dfrac{16}{15}$

3. If the three-digit number 5W2 is evenly divisible by 8, which of the following could be the value for the digit W?

    (A) 2
    (B) 3
    (C) 4
    (D) 5
    (E) 6

4. Which of the following numbers is between 0.375 and 0.5?

    (A) $\dfrac{1}{4}$

    (B) $\dfrac{3}{8}$

    (C) $\dfrac{15}{32}$

    (D) $\dfrac{9}{16}$

    (E) $\dfrac{11}{16}$

5. If a kilogram is equal to approximately 2.2 pounds, which of the following is the best approximation of the number of kilograms in one pound?

(A) $\dfrac{11}{5}$

(B) $\dfrac{5}{8}$

(C) $\dfrac{5}{11}$

(D) $\dfrac{1}{3}$

(E) $\dfrac{1}{5}$

6. $S = \{2, 4, 6, 8, 10\}$

If each number in S is increased by 2, the sum of all the numbers in S would be increased by

(A) 2
(B) 10
(C) 20
(D) 30
(E) 40

7. A laboratory has 55 rabbits, some white and the rest brown. Which of the following could be the ratio of white rabbits to brown rabbits in the lab?

(A) 3:8
(B) 5:11
(C) 3:4
(D) 3:1
(E) 5:1

8. The sum of two positive numbers x and z is 50. If x is greater than 10 more than four times z, which of the following includes the entire range of values for z?

(A) $0 < z < 4$
(B) $0 < z < 8$
(C) $0 < z < 10$
(D) $8 < z < 10$
(E) $8 < z < 50$

9. 18 is what percent of 90?

    (A) 16.2
    (B) 18.0
    (C) 20.0
    (D) 120.0
    (E) 500.0

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10. Which of the following sets of numbers has the property that the sum of any two numbers in the set is also a number in the set?

    I. The set of even integers
    II. The set of odd integers
    III. The set of prime numbers

    (A) I only
    (B) III only
    (C) I and II only
    (D) I and III only
    (E) I, II, and III

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11. The sum of the prime numbers between 0 and 10 is how much less than the sum of prime numbers between 10 and 15?

    (A) 6
    (B) 7
    (C) 9
    (D) 11
    (E) 13

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12. The price s of a sweater is reduced by 25% for a sale. After the sale, the reduced price is increased by 20%. Which of the following represents the final price of the sweater?

    (A) $1.05s$
    (B) $.95s$
    (C) $.90s$
    (D) $.85s$
    (E) $.80s$

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13. How many hours is the same length of time as 8.64×10^5 seconds?

    (A) 240
    (B) 400
    (C) 2,400
    (D) 4,000
    (E) 24,000

14. If a *prifact* number is a nonprime integer such that each factor of the integer other than 1 and the integer itself is a prime number, which of the following is a *prifact* number?

    (A) 12
    (B) 18
    (C) 21
    (D) 24
    (E) 28

15. The low temperature on a certain day was 50°, and the high temperature was 75°. If the same <u>percent</u> increase were true for the next day, what was the high temperature if the low was 60°?

    (A) 80
    (B) 85
    (C) 87
    (D) 90
    (E) 95

16. What is the average of the first 30 positive integers?

    (A) 14
    (B) 14.5
    (C) 15
    (D) 15.5
    (E) 16

17. What is the least positive integer x for which $150x$ is the square of an integer?

    (A) 3
    (B) 4
    (C) 5
    (D) 6
    (E) 7

18. The first and seventh terms in a sequence are 1 and 365, respectively. If each term after the first in the sequence is formed by multiplying the preceding term by 3 and subtracting 1, what is the sixth term?

    (A) 40
    (B) 41
    (C) 121
    (D) 122
    (E) 123

19. At a certain school, if the ratio of teachers to students is 1 to 10, which of the following could be the total number of teachers and students?

   (A) 100
   (B) 121
   (C) 144
   (D) 222
   (E) 1,011

20. If d is an integer, which of the following CANNOT be an integer?

   (A) $\dfrac{d}{2}$

   (B) $\dfrac{\sqrt{d}}{2}$

   (C) $2d$

   (D) $d\sqrt{2}$

   (E) $d+2$

21.   A: $\{-3, 0, 1, 2\}$
       B: $\{-4, 2, 3, 5\}$

   If x is a number chosen from set A, and y is a number chosen from set B, what is the greatest possible value of $x^2 y$?

   (A) 20
   (B) 32
   (C) 36
   (D) 45
   (E) 50

22. If a "sump" number is defined as one in which the sum of the digits of the number is greater than the product of the digits of the same number, which of the following is a "sump" number?

   (A) 123
   (B) 234
   (C) 332
   (D) 411
   (E) 521

23. The ratio of red to blue to green marbles in a jar is 1:3:4. Which of the following could <u>not</u> be the total number of marbles in the jar?

    (A) 8
    (B) 32
    (C) 128
    (D) 136
    (E) 148

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24. A factory cut its labor force by 16 percent, but then increased it by 25 percent of the new amount. What was the overall change in the size of the workforce?

    (A) A 5% decrease
    (B) No net change
    (C) A 5% increase
    (D) A 9% increase
    (E) A 10% increase

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25. If the ratio of a to b is 6 to 5, and the ratio of 3b to c is 8 to 5, then what is ratio of a to c?

    (A) 25:18
    (B) 16:25
    (C) 18:25
    (D) 1:1
    (E) 48:25