



Diagnostic Assessment

Pre Algebra

- Written as fraction, the reciprocal of the number 2.4 equals to
 - $\frac{12}{5}$
 - $\frac{5}{12}$
 - $\frac{5}{24}$
 - $\frac{24}{5}$
- The decimal equivalent of the mixed fraction $4\frac{5}{9}$ is (correct to four decimal places)
 - 3.5556
 - 4.5556
 - 4.5566
 - 4.6667
- The value of the expression $x \div (y \times a)$, where $x = \frac{2}{3}$, $y = \frac{3}{5}$, and $a = \frac{1}{4}$ is
 - $\frac{40}{9}$
 - $\frac{9}{40}$
 - $\frac{9}{20}$
 - $\frac{3}{40}$
- If $\frac{x}{y} \div \frac{a}{5} = 10$, where $x = \frac{4}{5}$, $a = \frac{2}{3}$, then $y =$
 - $\frac{3}{2}$
 - $\frac{2}{3}$
 - $\frac{5}{3}$
 - $\frac{3}{5}$



5. The least among the following fractions $\frac{2}{5}, \frac{4}{7}, \frac{3}{10}, \frac{5}{9}, \frac{2}{3}$ is
- (a) $\frac{3}{10}$
(b) $\frac{5}{9}$
(c) $\frac{4}{7}$
(d) $\frac{2}{5}$
6. The L.C.M of $4a^2bp^3$, ab^3p^2 , and $8abp^2$ is
- (a) $4abp^2$
(b) $4abp$
(c) $8a^2b^3p^2$
(d) $8a^2b^3p^3$
7. The solution of the equation $5\frac{1}{2} + 2x = 3\frac{1}{2}$ is
- (a) 2
(b) -2
(c) 1
(d) -1
8. Ron bought some packets of doughnuts each costing \$ 2.40. If the tax on that purchase is \$3.45 and the total money paid is \$27.45, then the number of packets of doughnuts bought is
- (a) 10
(b) 11
(c) 9
(d) 12
9. If the pattern of numbers given continues, the 10th term would be $5, 4\frac{1}{2}, 4, 3\frac{1}{2}, \dots$
- (a) $\frac{1}{2}$
(b) $-\frac{1}{2}$
(c) 1
(d) -1



10. If a cab drive costs \$4.00 plus \$0.60 for each mile traveled, then the fare to be paid at the end of 7th mile is
- (a) \$6.00
 - (b) \$8.20
 - (c) \$10.20
 - (d) \$12.00
11. If the sum of first two terms of an Arithmetic sequence is 9 and the common difference is 3, then the 6th term is
- (a) 33
 - (b) 18
 - (c) 21
 - (d) 15
12. If 250g of flour is needed to make a pound of cake then the weight of the cake made with a kg. of flour is
- (a) 4kg.
 - (b) 2 lb.
 - (c) 4lb.
 - (d) 2 kg.
13. If Liz scores 35 marks in her class test out of a maximum of 60, then her percentage score is (correct to nearest integer)
- (a) 58%
 - (b) 59%
 - (c) 60%
 - (d) 57%
14. James wants to buy a bike which is marked \$ 475.00, but he has only \$425.00 with him. How much percent the shop should mark the price down so that James can buy the bike?
- (a) 10%
 - (b) 11%
 - (c) 12%
 - (d) 13%
15. The value of the expression $(2^2 + 3) - 2 + 8(-5) + 8 \div 4$ is
- (a) 10
 - (b) $-\frac{27}{4}$
 - (c) -33
 - (d) 33

**Answer Key & Explanations:**

1. (b): 2.4 can be written as a fraction as $\frac{24}{10} = \frac{12}{5}$ after bringing it to its lowest form. And its reciprocal shall be $\frac{5}{12}$
2. (b): convert the mixed fraction into an improper fraction ($\frac{41}{9}$) and then divide the numerator by the denominator.
3. (a): substitute the values of x, y and a in the given formula
4. (d): by substituting the values of x and a in the equation and equating it with the given integer(10)
5. (a): convert all the fractions to decimals.
6. (d): Find all common multiples to all expressions and then find the Lowest Common Multiple
7. (d): first convert the mixed fractions to improper fractions and then solve for x
8. (a): first subtract the tax from the total amount paid and then divide that answer with the cost of each packet of doughnuts
9. (a): it is a decreasing series with a common difference of $\frac{1}{2}$
10. (b): multiply 7 with 0.60 and then add the product to 4
11. (b): the series is in A.P with a common difference of 3 with the first term as 3
12. (d): one pound is approximately 0.5 kg.
13. (a): $\frac{35}{60} \times 100$
14. (b): James needs a discount of \$50 or more to buy the bike. 10% discount will mean \$47.5 less and 11% is \$52.25 less.
15. (b): Simplify and use the rule of PEDMAS