

BASIC MATH CALCULATIONS

1. Multiply:

$$\begin{array}{r} .016 \\ \underline{.016} \\ .000256 \end{array}$$
$$\begin{array}{r} .016 \\ \underline{.016} \\ 096 \\ 016 \\ 000 \\ \underline{.000256} \end{array}$$

You can see in the problem that there are 6 decimals – you must have that many decimals in your answer. Even though your answer has 5 numerals in it, you need to add an additional zero because there are 6 decimal points in the problem.

2. Divide:

$$2.25 \div .75 = 3$$

$$\begin{array}{r} 3 \\ 75 \overline{) 225} \\ \underline{225} \\ 0 \end{array}$$

Look at how that is set up. Many times, candidates don't understand how to set up a problem like this. You need to change to a whole number by moving the decimal point over 2 places to the right – that's 2.25 to 225 and .75 to 75.

3. $1.78 - .7 = 1.08$

$$\begin{array}{r} 1.78 \\ - .70 \\ \hline 1.08 \end{array}$$

You need to set up the problem carefully. You should set up the .7 to .70. Make sure you are lining up your decimal points so that you can perform the subtraction problem to obtain the correct answer.

4. $1/2 + 1/4 = 3/4$

$$\text{LCD} = 4$$

$$\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$$

You first have to find the lowest common denominator; meaning, you need to have the denominators match so that you can add them. Therefore, you have to find the lowest multiple (in this problem, that would be 4) and then change the first fraction to fourths instead of halves. So 1/2 is now 2/4 and you can add 1/4 to that to get the answer of 3/4.

5. $\frac{11}{4} = \frac{77}{?}$ (28)

$$\begin{array}{r} \frac{11}{4} \times \frac{77}{X} \\ 11 \times \sqrt{308} \\ \quad \underline{28} \\ \quad \quad \underline{22} \\ \quad \quad \quad \underline{88} \\ \quad \quad \quad \quad \underline{88} \end{array}$$

OR $77 \times 4 = 308$
 $11 \times ? = 308$
 $11 \times 28 = 308$

Solving a problem that has a missing number – either X or ? – causes issues for many candidates. First, cross multiply 77×4 you get 308. You need to find the number that you can multiply by 11 and come up with the same numerical value of 308. You can set up this problem by dividing 11 into 308. The answer is 28.

6. $\frac{2}{7} \times \frac{3}{7} = \frac{6}{49}$

$$\frac{2}{7} \times \frac{3}{7} = \frac{6}{49}$$

For this problem, you can just straight multiply both the numerators (top number in a fraction) and the denominators (bottom number). So $2 \times 3 = 6$; $7 \times 7 = 49$ for an answer of $\frac{6}{49}$.

7. What one number can replace both question marks?

$$\frac{2}{?} = \frac{?}{50} \quad 10$$

Again, you need to find what number can replace both question marks. You need to first multiply 2×50 – which equals 100. The only one number that can replace both question marks is 10 ($10 \times 10 = 100$).

Try the answers by inserting them in the place of the ? marks

$$\begin{array}{l} 10 \times 10 = 100 \\ 2 \times 50 = 100 \end{array}$$

8. $3.5\% \text{ of } 80 = 2.8$

$$\begin{array}{r} .035 \\ \times 80 \\ \hline 000 \\ \underline{280} \\ 2.80 \end{array}$$

Whenever you see the word “of” in a math problem, it means multiply. To solve this problem, you must first convert the percentage to a decimal. To **convert** a quoted **percentage to decimal** format you move the **decimal** two places to the left.

9. $6 + (4^2) + 12 =$

$$6 + 16 (4 \times 4) + 12 = 34$$

For this problem, first compute what is in the parenthesis – 4 squared means 4 x 4 or 16. Then you can just add all the numbers in the equation.

10. $1 \div 1/2 =$

$$\frac{1}{1} \times \frac{2}{1} = 1 \times 2 = 2$$

Many people get these problems wrong as well. You need to change this equation to multiplication and invert. So the problem then becomes $1/1 \times 2/1$. Again – multiply the numerators and denominators and you get $2/1$ or 2.

11. $15 = 75\% \text{ of ?}$

1)
$$\begin{array}{r} 15 \\ \times 100 \\ \hline \end{array}$$

2) $75X = 1500 (15 \times 100)$

3) $1500 \div 75 = 20$
 $X = 20$

OR $15 \times 100 = 1500$
 $75 \times ? = 1500$
 $75 \times 20 = 1500$

Again, you see the word “of” which means multiplication. Set the problem up as $15/X$ and $75/100$ (see 1 above). Then cross multiply 15×100 which equals 1500. Then to find X, you need to figure out what number multiplied by 75 will also equal 1500. To do this, you need to divide 75 into 1500 and you get 20.

12. $7^2 + \text{the square root of } 81 =$

$$(7 \times 7) + \sqrt{81} =$$
$$49 + 9 = 58$$

First, figure out each part of the problem. 7 squared equals 49 (7×7). Then the square root of 81 is 9 (9×9). Then simply add the two together to get 58.

13. $? = 33 \frac{1}{3}\% \text{ of } 963$

$$\frac{1}{3} \times \frac{963}{1} = \frac{963}{3} = 321 \quad \text{or} \quad \begin{array}{r} 963 \\ \times .333 \\ \hline 321 \end{array}$$

“Of” means multiplication. You can change $33 \frac{1}{3}\%$ to a fraction ($1/3$) and change 963 to a fraction of $963/1$; multiply and you get $963/3$. Divide 963 by 3 and you get 321. OR you can convert $33 \frac{1}{3}\%$ to .333 and then simply multiply the problem.

14. Which is half of $\frac{1}{5}$?

$$\frac{1}{2} \text{ of } \frac{1}{5}$$
$$\frac{1}{2} \times \frac{1}{5} = \frac{1}{10}$$

Again, multiplication solves this equation. $\frac{1}{2} \times \frac{1}{5} = \frac{1}{10}$.