2012 Cowbell National Secondary Schools Mathematics Competition

Junior Category

Solutions

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2012 COWBELL NATIONAL SECONDARY SCHOOLS MATHEMATICS COMPETITION

SOLUTION (JUNIOR C.)

1. Given that $a = \frac{1}{2}$ and $b = \frac{1}{4}$, which of the following has the greatest value?

Soln

$ab = \frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$

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

$a/b = \frac{1}{2} \div \frac{1}{4} = \frac{1}{2} \times \frac{4}{1} = 2$

$b/a = \frac{1}{4} \div \frac{1}{2} = \frac{1}{4} \times \frac{2}{1} = \frac{1}{2}$

$(ab)^2 = (\frac{1}{2} \times \frac{1}{4})^2 = (\frac{1}{8})^2 = \frac{1}{64}$

It can be seen that 2 is the greatest number.

$\therefore$ Ans = a/b (C)

2. Audu's average score on the first four mathematics tests of the term is 92. If he earns a score of 77 on the fifth test, what will his new average be?

Soln

$\Sigma f = 4, \bar{x} = 92$.

But, $\Sigma fx = \Sigma f \times \bar{x}$

$= 4 \times 92$

$\Sigma fx = 368$

When 77 is added.

$\Sigma fx = 368 + 77 = 445$

$\Sigma f = 5$

$\therefore \bar{x} = \frac{\Sigma fx}{\Sigma f} = \frac{445}{5}$

$\bar{x} = 89$ (E)

3. The population of a village in Edo State is 5846. Express the population to 3 s.f.

Soln

5846 $\Rightarrow$ 5846

$\Rightarrow$ 5850 (C)

4. Find the sum of the 3rd and 5th terms of the sequence whose nth term is $3n+1$.

Soln.

nth $= T_n = 3n+1$

5th $= T_5 = 3(5)+1$

$= 16$

3rd $= T_3 = 3(3)+1$

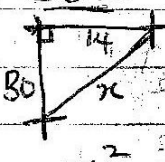
$= 10$

$\therefore$ 3rd + 5th $= 10 + 16$

$= 26$ (D)

5. Mark travels 30km due North and then 14km due West. What is Mark's new distance from the origin?

Soln



Using Pythagoras Theorem

$x^2 = 30^2 + 14^2$

$= 900 + 196$

$x = \sqrt{1096}$

$x = 33.11$ (C)

For the remaining part of the solutions, contact: Tests Administrator, ASSURE Educational Services, Lagos – 07063397940, 08050701465

ASSURE Educational Services will conduct online mock tests for students preparing for the 2015 Cowbell National Secondary Schools Mathematics Competition, to ascertain their level of preparedness for the competition.

Registration is in progress. To register, contact: The Tests Administrator, ASSURE Educational Services, Lagos – 07063397940, 08050701465 – admin@assure.com.ng