Mathematics

Some mathematics problems for the students those who are in year 7 and year 8. Target time for these set of question would be 30 minutes. Answers will be provided in the next issue. *This page is conducted by Dr. Kulan Ranasinghe (PhD in Mathematics and Statistics, BSc Mathematics Special (Frist Class Honors)), Director of SHAKYA Institute of Education; Honorary Fellow at Melbourne University. kulana@gmail.com / 0433 266 987.*

Question 1

Evaluate the following

$\boldsymbol{a}).\ 1-(3+\ -5)+(-3)^2=$

$\boldsymbol{b}).\ -7\times\ -7+7=$

$\boldsymbol{c}).\ -16\div -4+12\div 3+9=$

Question 2

Find 15% of \$160.

Question 3

Which is the shortest distance, 32400 cm or 3.24 km?

Question 4

Expand and simplify

$\boldsymbol{a}).\ (2x-y)(x-3y)=$ $\boldsymbol{b}).\ (a+2b)(2b-a)=$

$\boldsymbol{c}).\ (2a-2b)(a+2b)=$

Question 5

Write down an inequation that shows the following statement:

k is -3 or more and less than -1

Question 6

Price of a bag is \$102 after 15% discount. Find the original price of the bag.

Question 7

Simplify these surds completely.

$\boldsymbol{a}).\sqrt{72}$ $\boldsymbol{b}).\ \sqrt{192}$

Question 8

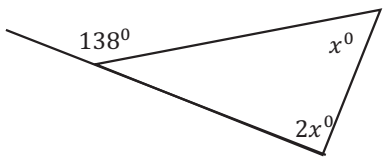
\$180 is shared among Kevin, Max and Joe in to the ratio 1: 3: 5. How much did Kevin receive?

Question 9

There are two metal wires with same length. One of them folded to make a rectangle. Width of the rectangle is 6cm and is one third of its length. The other metal wire used to make a square. What is the length of a side of the square?

Question 10

Find the value of x (figure is not to scale)



Question 11

Simplify the following:

$\boldsymbol{a}).-(-2)^3\times(-3)=$ $\boldsymbol{b}).\ \frac{(p^{-4}q)^{-2}}{p^3}\times\frac{q^{-4}}{p^4q}=$

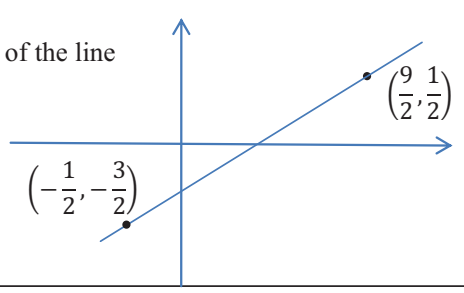
$\boldsymbol{c}).\ \frac{n^{-3}}{m^{-2}n^2}\times\frac{n^{-3}m^2}{m^{-2}}=$ $\boldsymbol{d}).\ (5^0\ m^2n)^3\times\ (m^5n^0)^2=$

Question 12

A particular vehicle valued at \$19 990 before 10% of GST applied. What is the value of the vehicle after GST applied?

Question 13

Find the gradient of the line



Question 14

Solve for x

$\boldsymbol{a}).\ 1-\frac{2(1-3x)}{3}\leq 4$ $\boldsymbol{b}).\ \frac{4x+1}{3}-\frac{x+6}{5}=-2$

Question 15

If $\frac{m}{h-1}+m\ =\ 3m+1$, then $m=$

Question 16

Speed of a train is 22 m/s. How far does it travel in 35 minutes?

Question 17

If $V=\frac{4}{3}\pi r^3$, then $\pi=$

Question 18

A car travels 32km in 40 minutes. What is the speed of the car in m/s?

Question 19

Expand and simplify: $-3(3x-2)-\ 2\ (2-3x)$

Question 20

Rationalise and simplify

$\boldsymbol{a}).\ \frac{7\sqrt{2}}{\sqrt{7}}=$ $\boldsymbol{b}).\ \frac{2\sqrt{3}}{3\sqrt{13}}=$

Question 21

Expand and simplify

$\boldsymbol{a}).\ \left(\sqrt{2}-2\sqrt{5}\right)^2=$ $\boldsymbol{b}).\ \left(\sqrt{3}+2\sqrt{7}\right)^2=$

Question 22

Simplify

$$\frac{p^2-2p-15}{p-5}\times\frac{4p-12}{p^2-9}$$

Question 23

Factorize and simplify

$\boldsymbol{a}).\ p^2-11p+28=$ $\boldsymbol{b}).\ 3m^2-\ 14m\ +11=$

$\boldsymbol{c}).\ 7a^2\ -\ 12a\ +\ 5=$

Question 24

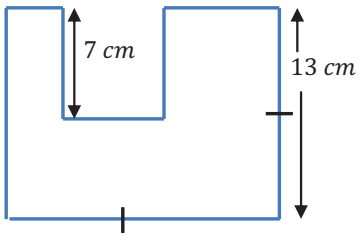
Evaluate following :

$\boldsymbol{a}).\ \frac{1}{3}+\frac{1}{2}\ \times\frac{3}{4}=$ $\boldsymbol{b}).\ \frac{1}{4}\times\frac{9}{5}\div 3=$

$\boldsymbol{c}).\ \frac{1}{4}\ \div\frac{1}{5}\ +\frac{1}{3}=$

Question 25

Find the perimeter of the following shape



---------- **Questions End Here** ----------

Dr. Kulan Ranasinghe *(PhD in Mathematics and Statistics, BSc Mathematics Special (Frist Class Honours)), Director of* ***SHAKYA Institute of Education****; Honorary Fellow at The University of Melbourne*