

Solutions & Winners

Kids' 'X' Word Solution

1	F	2	L	3	O	4	C	5	K	⊗	6	N
7	A	C	A	D	E	8	M	Y				
9	R	O	S	E	P	T	L					
10	A	K	I	A	L	⊗	O					
	D	⊗	11	S	E	E	12	V	N			
13	A	14	M	⊗	15	E	R	A	⊗			
16	Y	A	17	R	D	⊗	18	S	W			
⊗	19	P	M	I	R	E	⊗					

Kids Challenge!

Did you find the word?

It is "PROSE".

Smart kids :

1. Sravya Ainapurapu, St. Louis.
2. Sruthi Ainapurapu, St. Louis.
3. K. Dileep, Allahabad.

Kids' 'X'word Winners:

1. Neeharika, Georgia.
2. Abhijit Vaidya, Dallas.
3. D. Aditya, Lucknow.

Salutation to your solution! - Answers

1. 30 seconds.

The first car is moving at a velocity 54 kmph, which is equal to $54 \times (5/18)$ m/sec.
The second car is moving at a velocity of 72 kmph, which is equal to $72 \times (5/18)$ m/sec.

[1 kmph = 1km/hour = 1000m/3600 sec = 5/18 m/sec.]

So the 1st and 2nd cars are travelling with a velocity 15m/sec and 20m/sec respectively. When the cars are approaching each other the distance is reduced by 35m/sec. The distance between the cars in the beginning is 1050 meters.

So it takes $1050/35 = 30$ seconds or half a minute for the cars to meet each other.

2. Square with side 4 units & rectangle with length 6 units and width 3 units.

A square having side 4 units, will have area and perimeter same.

It is possible to have a rectangle with equal area and perimeter. Here when you analyze the perimeter is always even number. So for the area to be even, the sides should be either both even or one of them should be even. If both length and width are odd, the area is odd and perimeter is going to be even. Trying those combinations, we get a rectangle with length 6 units and width 3 units.

3. 1.

Reciprocal of 1 is 1. So the sum of number and its reciprocal is 2. For any other number it turns out to be a fraction.

4. 7542.854 meters.

The mountain is in the shape of a cone as per the description. The slant height is 1300 meters. The vertical height (altitude) is 500 meters. If we imagine slant height, vertical height and radius of the base form a right angled triangle. So the radius of the base circle is 1200 meters [Square root of $(1300^2 - 500^2) = \text{square root of } 1440000 = 1200$]. The path is nothing but the circumference of the base circle. So the length of the path is $2\pi \times 1200 \text{ meters} = 2400\pi = 7542.854 \text{ meters}$.

5. The diameters of the cylinders are reducing from 8 to 4. The middle cylinder diameter is 6 inches. Similarly height is varying from 9 to 5. So the middle cylinder height is 7 inches. So the volume is $\pi \times 3^2 \times 7 = 63\pi = 197.92 \text{ cubic inches}$.

6. $(27)^{n/3} = 9^{5/2} \rightarrow (3^3)^{n/3} = (3^2)^{5/2} \rightarrow 3^n = 3^5 \rightarrow n = 5$

7. The diameter of the cylinder is 14mm and height is 5 cm = 50mm. When it is carved to a hexagonal prism, the side of the prism base is 7mm (half the diameter = Half the diagonal). To get the volume of cut material, we need to subtract the volume of the prism from cylinder.

Cylinder volume = $\pi \times 7^2 \times 50 = (22/7) \times 49 \times 50 = 7700 \text{ cubic mm}$.

Prism volume = $6(\sqrt{3}/4) \times 7^2 \times 50 = 6 \times (1.732/4) \times 49 \times 50 = 6365.1 \text{ cubic mm}$.

Volume of cut material = $7700 - 6365.1 = 1334.9 \text{ cubic mm}$.

8. $a^b = c$; $b^c = d$; $c^d = a$;

So $a = c^d = (a^b)^d$ [Because $c = a^b$]

$\Rightarrow a = a^{bd}$

$\Rightarrow bd = 1$

Salutation to your solution! - Winners:

1. T. Anoop, East Godavari, India. 2. Vaasanti Maghapu, California.

Question Gallery! - We ourselves disclosing answers!!

1. The Red sea is an extension (or inlet) of the Indian Ocean, located between Africa and Asia.
2. George Bernard Shaw wrote the book 'Man and Superman'.
3. Kiwi is a bird name and also a fruit name.
4. Cerebellum is the portion of the brain in the back of the head between the cerebrum and the brain stem. The Cerebellum controls balance for walking and standing and other complex motor functions.
5. The capital of New Zealand is Wellington.
6. The largest bird that can not fly is Ostrich.
7. Eight pints are equal to one Gallon.
8. Diamond is the hardest mineral found so far on the surface of earth.
9. Helen Keller, who lost her sight and hearing when she was young, wrote her autobiography, 'The Story of My Life', 'My Later Life' etc.
10. The term HydroCarbon is used in organic Chemistry.

Question Gallery! - Winners : 1. Vaasanti Maghapu, California.

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