Solutions & Winners

Kids' 'X' Word Solution

¹T	²R	³U	⁴T	⁵H	⊕	⁶D	⁷T
⁸A	O	L	A	H	⊕	⁹A	I
¹⁰R	U	L	E	⊕	¹¹I	N	K
¹²G	N	O	R	¹³E	⊕	¹⁴C	S
¹⁵E	D	U	C	A	¹⁶T	E	⊕
T	⊕	M	⊕	¹⁷P	O	⊕	¹⁸O
⊕	¹⁹G	O	⊕	²⁰C	R	²¹O	W
⊕	²²A	M	A	H	N	U	N

Kids Challenge!

Did you find the word?
It is "TEACHER".

Smart kids :

1. M. Swetha, Hyderabad.
2. D. Aditya, Lucknow.
3. Sravya Ainapurapu, St. Louis.
4. Sruthi Ainapurapu, St. Louis.

Kids' 'X'word Winners:

1. A. Lakshmi Puja,
   Visakhapatnam.
2. A. Swathi Keertana,
   Visakhapatnam.
3. D. Aditya, Lucknow.
4. Sravya Ainapurapu, St. Louis.

Salutation to your solution! - Answers

1. 28 years.

   Solution: Mohan's birthday is on February 29th, a leap year. He celebrates his next birthday after 4 years. On the selected year his birthday falls on Wednesday. After 4 years it falls on Monday (as a year consists of 365 days, which is 52 weeks and a day, that adds 4 days in 4 years + 1 day for leap year). After 8 years it falls on Saturday. So after 28 years, his birthday falls on Wednesday again.

2. 2 and 6 or 6 and 2.

   Solution: 1A99B is divisible by 36, which means divisible by 4 and 9. Now for any number to be divisible by 9, the sum of the digits should be divisible by 9.
   So 1 + A + 9 + 9 + B = 19 + A + B is divisible by 9 => A + B is either 8 or 17.
   As the number is divisible by 4, which means the last 2 digits should be divisible by 4. So 9B should be divisible by 4. So B value is either 2 or 6 (as 92 & 96 are divisible by 4). With these values of B, A + B can never be equal to 17. So A + B should be equal to 8, which indicates if B is 2, A is 6 or if B is 6 then A is 2.

3. (a) Circle, Pentagon, Square and Triangle.
   (b) Triangle, Square, Pentagon and Circle.

Solution: (a) Let us take Triangle, Square, Pentagon and Circle having same perimeter. If we take 60 units of perimeter, then

the side of equilateral triangle is 20 units and the area is $(\sqrt{3}/4) \times 400 = 173.2$ sq. units.

the side of square is 15 units and area is $15^2 = 225$ sq. units.

the radius of circle is $105/11$ units (as $2\pi r = 60$) and area is $\pi \times (105/11)^2 = 3150/11 = 286.36$ sq. units.

So depending on number of sides - the more the number of sides, the more the area. [Assume circle having infinite number of sides.] Thus the figures having largest area to smallest area are Circle, Pentagon, Square and Triangle.

(b) Let us take Triangle, Square, Pentagon and Circle having same area. If we take 173.2 square units area, then

the side of equilateral triangle is 20 units (as $(\sqrt{3}/4)a^2 = 173.2$) and thus the perimeter is 60 units.

the side of square is 13.1 units (as $a^2 = 173.2$) and thus the perimeter is 52.4 units.

the radius of circle is 7.42 units (as $\pi r^2 = 173.2$) and thus circumference is $2\pi \times 7.42 = 46.64$ units.

So depending on number of sides – the more number of the sides, the less perimeter. Thus the figures having largest perimeter to smallest perimeter are Triangle, Square, Pentagon and Circle.

4. **36, 72, 36, 36 respectively.**

Solution: Students who like Mathematics 45%, Science 60%, Social studies 70%. Students who like both Mathematics and Science is 15%, Science and Social studies 35%, Mathematics and Social studies 20%. Students who like all Mathematics, Science and Social studies are 5%. Students like only Mathematics are $45 – 15 – 5 – 20 = 5\%$. Students like only Science are $60 – 15 – 35 – 5 = 5\%$. Students like only Social studies are $70 – 20 – 35 – 5 = 10\%$. Students that doesn't like any of the subjects = $100 – 5 – 5 – 10 – 15 – 5 – 20 – 35 = 5\%$. Total number of students = 720. So students like only Mathematics, Science, Social studies are 36, 36 and 72 respectively. Students who doesn't like any of the subjects are 36.
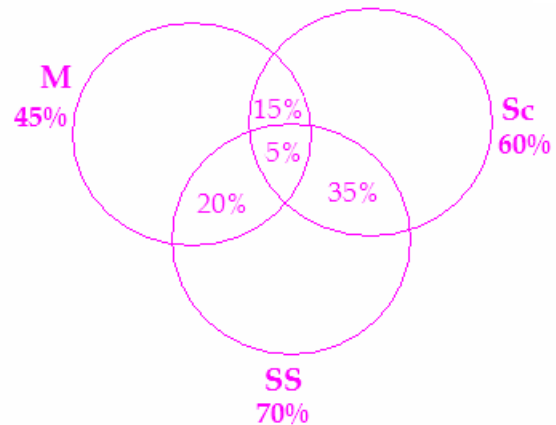
Using set notation

Students who likes only Mathematics = M – (M ∩ Sc) – (M ∩ SS) + (M ∩ Sc ∩ SS)

Students who likes only Science = Sc – (Sc ∩ M) – (Sc ∩ SS) + (M ∩ Sc ∩ SS)

Students who likes only Social studies = SS – (SS ∩ M) – (SS ∩ Sc) + (M ∩ Sc ∩ SS)

Students who doesn't like any of the subjects = U – (M ∪ Sc ∪ SS)

5. **135ft from ground.**

   Solution: One object is dropped from a height 160 ft. A bullet is fired from ground with a velocity of 128ft/sec. If the bullet and object meet '**S**' ft from ground. Then

   $160 - S = 0.t + \frac{1}{2} \times 32 \times t^2$ [using $S = ut + \frac{1}{2} at^2$]

   $S = 128t + \frac{1}{2} \times (-32) \times t^2$

   So $160 - 16t^2 = 128t - 16 t^2$

   $160 = 128t$

   $t = 160/128 = 5/4 = 1\frac{1}{4}$ Sec.

   Thus $S = 128 \times 5/4 - 16 \times 25/16 = 135$ ft.

Salutation to your solution! - Winners:

1. Sarada Shonti, Kakinada, India.   4. Vaasanti Maghapu, California.
2. Ravi Bhagavatula, Chicago.   5. T. Anoop, East Godavari, India.
3. V. Vijay Kumar, Prakasam Dist., India.

Question Gallery! - We ourselves disclosing answers!!

1. Dadabhai Nauroji was given a title 'Grand old man of India'.
2. Ravindranath Tagore wrote "Post Office".
3. Jawaharlal Nehru memorial in Delhi is called Shantivan.
4. Panama Canal is a man-made canal in Panama which joins the Pacific and Atlantic oceans.
5. The capital of Siria is Damascus.
6. Kaleidoscope is a tube of mirrors containing loose colored beads, pebbles or other small colored objects. The viewer looks in one end and light enters the other end, reflecting off the mirrors. Typically there are two rectangular lengthwise mirrors. Setting of the mirrors at 45^0 creates eight duplicate images of the objects, six 60^0, and four at 90^0. As the tube is rotated, the tumbling of the colored objects presents the viewer with varying colors and patterns. Any arbitrary pattern of objects shows up as a beautiful symmetric pattern because of the reflections in the mirror. A two-mirror model yields a pattern or patterns isolated against a solid black background, while a three-mirror (closed triangle) model yields a pattern that fills the entire field.
7. One mile is equal to 1760 yards.
8. Symbol of Lithium is Li.
9. Sharat Chandra Chatterji is a well known Bengal novelist. 'Devadas' movie is produced in various different languages based on his novel.
10. The word 'Grand Master' is used in Chess.

Question Gallery! – Winners :

1. Ravi Bhagavatula, Chicago.   3. Vaasanti Maghapu, California.
2. T. Anoop, East Godavari Dt.