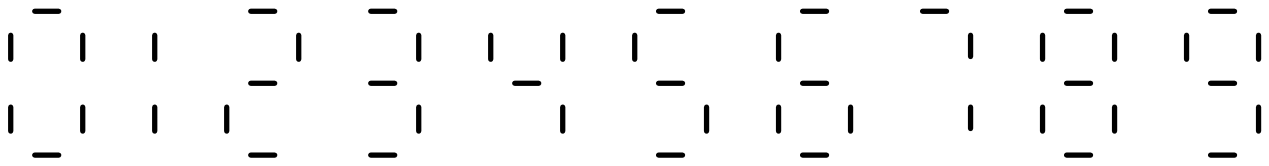


## PUZZLES KEY

- 1) Change the equation into a correct equation by altering the position of only one digit:

$$101 - 102 = 1 \quad \text{Answer: } 101 - 10^2 = 1$$

- 2) Chris dreamt last night of the digital numbers on his alarm clock:



Chris woke up at 10:08 A.M. What is so special about this time?

Answer: It is the time that uses the most line segments.

- 3) Aaron and Emma like and dislike the same things. Is Monica or Bill their best friend?

Hints:

They like the number three but not the number two.

They like the number nineteen but not the number twenty.

They like the number one-million but not the number one-thousand.

More Hints:

They like addition but not subtraction.

They like parallelograms but not squares.

They like square roots but not squares of numbers.

They like Fibonacci but not Pythagoras.

They like Gauss but not Galileo.

They like abscissa but not ordinate.

They like degrees but not radians.

They like coordinate geometry but not Euclidean geometry.

They would rather spell with letters than count with numbers.

Answer: Bill (They like anything that is spelled with a double letters.)

- 4) Given:  $(x - a)(x - b)(x - c) \dots (x - z) = ?$

The product of the given problem, the ?, has what *numerical* answer?

Hint: I will take the Chicago Cubs and you take your favorite major league baseball team. I will add up all the runs the Cubs will score in each game played this season and you get to multiply the runs scored by your team in each game played this season. I bet that the Cub's sum will be greater than your team's product. If you know the reason why the Cub's bet is better then it will help you to answer the original problem.

Answer to the baseball bet:                      Since your team will be shutout and score zero runs some time during the season the product will be zero.

Answer: 0 (zero) because  $x - x = 0$

- 5) Part way through the baseball season, Mr. Cub and Mr. Sox are both batting 0.333 (hits divided by at bats). In the next game Mr. Sox goes 3 for 3 while Mr. Cub goes 4 for 5 (4 hits in 5 at bats). After this game who will have the higher batting average?  
a) Mr. Sox                    b) Mr. Cub                    c) Could be either one

Answer: c)

example 1: If they were both 44 for 132 then 4 for 5 is 0.350 while 3 for 3 is only 0.348.

example 2: If they were both 3 for 9 then 4 for 5 is 0.500 while 3 for 3 is 0.500.

example 3: If they were both 1 for 3 then 4 for 5 is 0.625 while 3 for 3 is 0.667.

- 6) A customer brought into a jeweler's shop six identical *straight* chains, each of which had five identical links. The customer wanted the six chains to be joined into one large *circular* chain. The jeweler said it would cost \$1 for every link that had to be cut and then closed back together. The customer, being very smart, paid how much to the jeweler to make the chain?

Answer: \$5 (break 1 chain completely)

- 7) Given:    group one contains the letters:                    M, T, U, V, W, Y  
              group two contains the letters:                    C, D, E, K  
              group three contains the letters:                    S, Z  
              group four contains the letters:                    H, O, X  
              group five contains the letters:                    F, G, J, L, P, Q, R

Each letter of the word **BRAIN** belongs in what group?

Each digit of the number **358** belongs in what group?

Answer:    **B** in group two due to horizontal symmetry  
              **R** in group five due to no symmetry  
              **A** in group one due to vertical symmetry  
              **I** in group four due to all types of symmetry  
              **N** in group three due to point (rotational) symmetry  
              **3** in group two due to horizontal symmetry  
              **5** in group five due to no symmetry  
              **8** in group four due to all types of symmetry

- 8) A man says that he was 28 years old two days ago, but he will be 31 years old next year. How can this be?

Answer: He was born on December 30th and today is January 1st.

- 9) A woman said that her late husband was born in Winfield in 1950 and died at the age of 35 next door to where he was born in 1952. How can this be?

Answer: He was born in hospital room #1950 and died in room #1952.

10) Divide 6 by a half and add 10. What is the answer?

Answer: 22 (6 divided by  $\frac{1}{2}$  is 12; plus 10 is 22)

11) Half of two plus two equals what number?

Answer: 3 (half of two is one then one plus two is 3)

12) Mary is 10 years older than her brother John. Together they total 11 years. How old is each one?

Answer: Mary is 10.5 years and John is 6 months old.

13)  $\frac{16}{64}$  can be reduced to  $\frac{1}{4}$  just by crossing out the 6's

$\frac{26}{65}$  can be reduced to  $\frac{2}{5}$  just by crossing out the 6's

$\frac{49}{98}$  can be reduced to  $\frac{1}{2}$  just by crossing out the 9's to give  $\frac{4}{8}$  or  $\frac{1}{2}$

There is another base ten fraction - that is not improper, where the numerator and denominator are both positive, where the numerator and denominator are both 2 digit numbers, and the units digit does not equal the tens digit - that reduces correctly by crossing out the units digit in the numerator with the tens digit in the denominator. Can you find the fraction?

Answer:  $\frac{19}{95}$