

Word Problems

1. Word Scramble

Given 6 groups of 4 letters, rearrange each group into a 5-letter word that ends in “Y”. Then take the middle letter of each word to create one final 6 letter word that means “a moment in time”.

DOTA
SEAS
NOAN
VIOR
REEV
CHIT

2. Animal Deletions

The following table contains 11 animal names and one quote from Jonathan Swift. Vertical animal names will be 5 letters and horizontal animal names will be 6 letters. Each letter will only be used once. The remaining letters that weren't part of animal name will reveal a quote when read from left to right and top to bottom. What is the quote?

K N B	A T O	W O D	G I C	S H E	M R E
W O M	A E I	T A N	E S A	Y E V	L E O
C R A	W O G	T U I	M S G	H A E	O R E
D L P	E O T	O E S	S B E	N U E	Y S M
R O A	A R U	R N B	G B L	I A E	E R T

3. Baseball Signals

Many baseball teams have coaches stand by 1st and 3rd base to give the players on bases signals about what they should do. Some common plays to signal for are to stay, cheat, or steal. Teams often have an activator sign as well which means players will do nothing unless they see the activator signed after a valid signal. If multiple valid signals precede the activator, the player will follow the last valid signal that appears before the activator. Given the following signal patterns and the action that occurred because of them, can you figure out which signal corresponds to each action?

right knee, right ear, left ear, nose - steal
nose, belt, hat, right ear - nothing
belt, left ear, nose, right ear - stay
right ear, hat, nose, left knee - cheat
right knee, nose, left ear, belt - nothing

4. Crack the Code

**This lock has a 3-digit code.
Can you crack it
using only these hints?**



⑥ ⑧ ② One number is correct and in the right place

⑥ ① ④ One number is correct but in the wrong place

② ⑦ ⑥ Two numbers are correct but in the wrong place

⑦ ③ ⑧ Nothing is correct

⑦ ⑧ ⑦ One number is correct but in the wrong place

① ① ①



5. Math Contest

John and Julie represented West High in a math contest. John outscored Julie by 16 points; as a team, they scored 80 points.

David and Dana represented East High in the same contest. Dana outscored David by 10 points; as a team, they scored 60 points.

Arrange the four students from highest score to lowest score.

6. Gardening

DigiKey has 24 gardeners. They decided to plant palm trees and blue bonnets around the PDCe. While each female gardener planted 3 blue bonnets, every three male gardeners planted 1 palm tree. By the end of the day the gardeners had planted 24 plants.

How many palm trees and blue bonnets were planted?

7. Animal Fractions

What is $\frac{3}{7}$ chicken, $\frac{2}{3}$ cat, and $\frac{1}{2}$ goat?

8. Fireman's Ladder

A fireman stood on the middle rung of a ladder directing water into a burning building. As the smoke lessened, he stepped up three rungs. A sudden flare-up forced him to go down five rungs. Later he climbed up seven rungs and worked there until the fire was out. Then he climbed the remaining six rungs and entered the building.

How many rungs did the whole ladder have?

9. Warehouse Organization

DigiKey recently implemented a new warehouse organization system to make finding specific parts easier. A few examples of what parts are stored in which aisles are included below.

Aisle F153 – Diode, Relay, ...

Aisle S110 – Switch, Sensor, ...

Aisle E1687 – Resistor, Inductor, ...

Aisle N183 – Connector, Resonator, ...

Aisle T38 – Transistor, Breadboard, ...

Based on this system, which aisle would a **Capacitor** be stored in?

10. Message Madness

Decrypt this message using the Atbash cipher (A -> Z, B -> Y, C -> X).

Pfwlh gl blf uli gsv sziv dlip zmw wvwxzgrlm blf nfhg szez szw gl wvxrksvi gsrh nvhhztv! Dv slkv blf ziv szermt ufm zg gsv gdvmgb ulfigs zmmfzo WrtrPvb Xloovtrzgv Xlwrmt Xlnkvgrgrlm. Dld gsrh rh z ivzoob olmt xlwv gl xizxp. Slkvufoob blf wl mlg tvg nzw zg gsrh jfvhgrlm. Gsv zmhdvi rh uligb gdl.

11. Danger Doors

You find yourself in a room with four doors. Each door is marked with a shape: rectangle, trapezoid, rhombus, and circle. Three of these doors lead to danger and one leads to safety. The door that leads to safety can be deduced using this string of numbers.

1 – 4 – 8 – 11 – 1

Manage your *time* carefully to determine which symbol is on the door that leads to safety.

12. Retirement Gift

A group of coworkers whose manager is retiring decide to go in together to buy them a gift, splitting the cost evenly between them. One of them remarks that if they had bought it before Harvey and Adam left the team, each of them would have spent \$4 less on the gift. True, says another – but it's good we bought it while Haley and Fred are still here because otherwise we would each have spent \$6 more! Given these comments, what is the price of the gift?

13. Frog Grid

A 3x3 grid is set up in the grass and one frog is placed in each grid position. At the sound of a bell, each frog jumps to an adjacent grid position at random (the frogs may jump up, down, left or right but not diagonally, and cannot leave the grid). Once the bell has rung twice, what is the probability that the center grid position does not contain a frog?

14. Bertrand's Box Paradox

There are three boxes – one contains two silver coins, one contains two gold coins, and the third contains one silver and one gold coin. Choose a box at random and from this box, withdraw one coin at random. If that happens to be a gold coin, then what is the probability that the next coin drawn from the same box is also a gold coin?

15. Kieran's Chicken

Kieran's Chicken Shop sells the following dinner bundles:

Three pieces of chicken with one biscuit

Five pieces of chicken with two biscuits and one side

Eleven pieces of chicken with four biscuits and two sides

Last Friday Kieran sold 724 pieces of chicken, 269 biscuits and 110 sides. How many of each bundle did he sell?

16. Horsing Around

Jorge would like to find the three fastest horses from a group of 25. He has no stopwatch and his racetrack has only 5 lanes. No more than 5 horses can be raced at once. How many races are necessary for Jorge to evaluate the 3 fastest horses?

17. Cryptic Clue

Solve the following cryptic crossword clue:

Beginners in algebra lesson probably hear about this Greek letter (5)

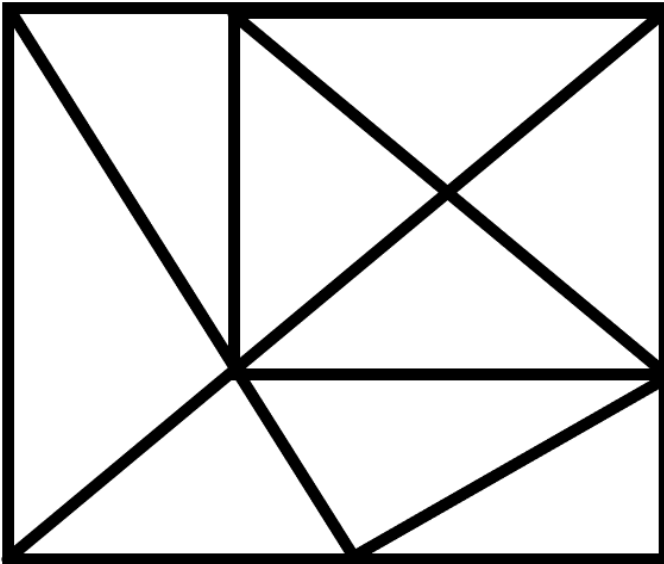
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18. You Betcha!

Xander and Yolanda spent an afternoon playing tennis against each other. They bet thirty-five cents on each game they played. Xander won four bets and Yolanda won two dollars and ten cents. How many games did they play?

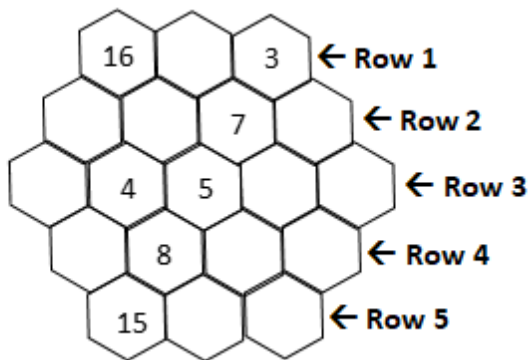
19. Triangles

How many triangles are there in the image below?



20. Hexagon Sudoku

Fill in the missing numbers so that every row or diagonal has the same sum. You can only use the numbers from 1 to 19 inclusive and can use no number more than once.

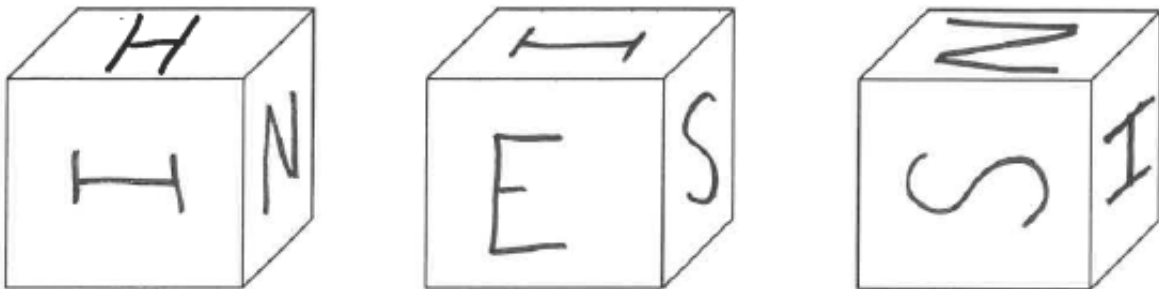


21. The Knight's Calculator

I have a calculator that can display ten digits. How many different ten-digit numbers can I type using just the 0-9 keys once each, and moving from one keypress to the next using the knight's move in chess? (In Chess, the knight moves in an L shape: one square up and two across, two squares down and one across, two squares up and one across, and other like combinations.)



22. Cube Shine



Three views of the same cube are shown above.

Which of the five letters – S, H, I, N, E occurs twice on the cube?

23. Warehouse Inventory

A distributor receives an order for 500 microcontrollers. They have 300 units in warehouse A and 250 units in warehouse B. How many units will they need to order from their supplier to fulfill the customer order, assuming they want to keep a safety stock of 50 units in each warehouse?

24. Customer Ordering

A customer places an order for 800 resistors, 600 capacitors, and 500 transistors. The warehouse has 1000 resistors, 500 capacitors, and 300 transistors in stock. If the lead time to get new stock is 2 weeks, and the customer needs the entire order fulfilled within one week, how many components of each type will need to be expedited?

25. DigiKey Ordering

Situation: DigiKey has a number of different orders to fulfill this week. Each order consists of the person who packed the order, the ship date, the pack station, and the item. No individuals have same the ship date, pack station, or order. Using the clues below, determine who packed the diodes, the ship date, and the pack station.

The order packed with diodes is either Tom's order or John's order.

Of the October 7th shipment and the order packed with transistors, one will be pack station D, and the other is packed by Sarah.

The order packed with capacitors will be shipped sometime before John's order.

Sarah's order, the pack station A order, and the October 8th shipment are all different orders.

The order packed with microcontrollers will be shipped 2 days after the pack station C order.

The October 5th shipment will be capacitors.

Beth's order will be microcontrollers.

The pack station B order is not shipped on October 6th.