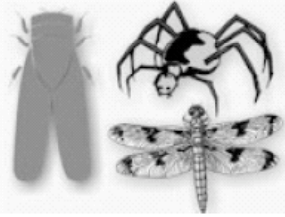
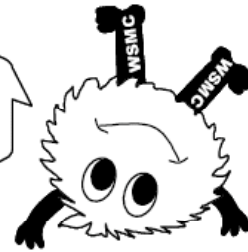


Thinker Dinkers

Got an idea for Thinker Dinkers?
Jot it down and send to Donna Buck, PO Box 170,
Joyce, WA 98343 (electronic information can be
sent to donna_buck@pasd.wednet.edu).



Spiders, Dragonflies and Cicadas

A spider has 8 legs. A dragonfly has 6 legs and 2 pairs of wings. A cicada has 6 legs and one pair of wings. Now we have all 3 kinds and a total of 18 insects in a cage. We have a total of 118 legs and 20 pairs of wings. How many insects do we have of each kind?

$$\begin{array}{l} 1). X + Y + Z = 18 \\ 2). 8X + 6Y + 6Z = 118 \\ 3). 2Y + Z = 20 \\ X = 5, Y = 7, Z = 6 \end{array}$$

Solution:

First we would like to solve the problem by simple math, and then solve it by using algebra.

If all insects are spiders, then we should have $18 \times 8 = 144$ legs. We have only 118 legs, so the difference is $144 - 118 = 26$. Every spider has 2 more legs than the other insects. We know there should be $26 / 2 = 13$ dragonflies and cicadas. So we know there are $18 - 13 = 5$ spiders.

In the meantime, if all 13 other insects are dragonflies, then we should have $13 \times 2 = 26$ pairs of wings. Because we have some cicadas, we have $26 - 20 = 6$ pairs more. Every dragonfly has 1 more pair of wings. So we know we have $6 / 1 = 6$ cicadas and $13 - 6 = 7$ dragonflies.

We can also solve this problem using algebra. Assume we have X spiders, Y dragonflies and Z cicadas. For the total number of insects, we have the equation $X + Y + Z = 18$. For the total number of legs, we have the equation $8X + 6Y + 6Z = 118$. For the total number of wings, we have $2Y + Z = 20$.

From the third equation we have: $Z = 20 - 2Y$. By substituting Z in the first equation and second equation, we will have:

$$\begin{array}{l} X - Y = -2 \\ 4X - 3Y = -1 \end{array}$$

By solving the above 2 equations, we have $X = 5$ and $Y = 7$. By substituting $Y = 7$ in the third equation, we have $Z = 6$.

We have 5 spiders, 7 dragonflies and 6 cicadas.

Did he tell the truth?

Jimmie Dean visited an island. There were 2 tribes living on this island. The east tribal people always tell a lie. The west tribal people always tell the truth.

Jimmie Dean saw a guy passing him. He asked the tour guide to ask that guy where he lives. The tour guide asked the guy and came back with the answer: he lives over west. Did the tour guide tell the truth or tell a lie?

Solution: The tour guide was telling the truth.