

- P2.1 Easter Sunday is the first Sunday after the first full moon of spring. To compute the date, you can use this algorithm, invented by the mathematician Carl Friedrich Gauss in 1800:

1. Let y be the year (such as 1800 or 2001).
2. Divide y by 19 and call the remainder a . Ignore the quotient.
3. Divide y by 100 to get a quotient b and a remainder c .
4. Divide b by 4 to get a quotient d and a remainder e .
5. Divide $8 * b + 13$ by 25 to get a quotient g . Ignore the remainder.
6. Divide $19 * a + b - d - g + 15$ by 30 to get a remainder h . Ignore the quotient.
7. Divide c by 4 to get a quotient j and a remainder k .
8. Divide $a + 11 * h$ by 319 to get a quotient m . Ignore the remainder.
9. Divide $2 * e + 2 * j - k - h + m + 32$ by 7 to get a remainder r . Ignore the quotient.
10. Divide $h - m + r + 90$ by 25 to get a quotient n . Ignore the remainder.
11. Divide $h - m + r + n + 19$ by 32 to get a remainder p . Ignore the quotient.

Then Easter falls on day p of month n . For example, if y is 2001:

$a = 6$	$g = 6$	$m = 0$	$n = 4$
$b = 20, c = 1$	$h = 18$	$r = 6$	$p = 15$
$d = 5, e = 0$	$j = 0, k = 1$		

Therefore, in 2001, Easter Sunday fell on April 15. Write a program that prompts the user for a year and prints out the month and day of Easter Sunday.

- P2.4 Write a program that helps a person decide whether to buy a hybrid car. Your program's inputs should be:

- The cost of a new car
- The estimated miles driven per year
- The estimated gas price
- The estimated resale value after 5 years

Compute the total cost of owning the car for 5 years. (For simplicity, we will not take the cost of financing into account.) Obtain realistic prices for a new and used hybrid and a comparable car from the Web. Run your program twice, using today's gas price and 15,000 miles per year. Include pseudocode and the program runs with your assignment.



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page P2.5 The following pseudocode describes how a bookstore computes the price of an order from the