

Pre Lab #9: Exercise Sheet

Print out this exercise sheet, complete it and turn it in to your lab instructor before your lab session on Wednesday/Thursday ends.

1) Write a Boolean expression for each of the following statements. Assume that x , y and z are **int** variables and have been declared.

a) 2 times x is greater than 3 times y but less than z .

b) x is even.

c) y is odd.

d) x is odd and y is even.

e) One of x and y is even and the other is odd.

Hints:

i) An integer is odd when the remainder of dividing the integer by 2 is 1. On the other hand, an integer is even when the remainder of dividing the integer by 2 is 0.

ii) Use the remainder operator (%).

2) Write a Boolean expression for each of the following sentences. Assume that **year** is an **int** variable already declared that stores an integer greater than or equal to zero.

a) **year** is a century.

b) **year** is a century and is divisible by 400.

c) *year* is not a century and divisible by 4.

d) *year* is not a century and is divisible by 4 or a century divisible by 400.

Hints:

- A century is 100 years.
- An integer *a* is divisible by another integer *b* when the remainder of *a* divided by *b* is zero.
- Use the remainder (%) operator to compute the remainder.

3) For each of the Boolean expressions below, circle its truth-value.

int a=5, b=3, c=9;

boolean e=true, f=false;

a) $c \% b > a - b$	true	false
b) $e \ \&\& \ f \ \ \text{true}$	true	false
c) $a > c \ \&\& \ b + 6 < c \ \ b != c$	true	false
d) $(a > c \ \ b + 8 >= c) \ \&\& \ b != c \ \ !e$	true	false
e) $!(a == b) \ \ e \ \&\& \ b < c \ \&\& \ a <= c \ \ !f$	true	false
f) $b != c \ \&\& \ (a > c \ \ b + 8 >= c) \ \ !f$	true	false