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Informatik für Mathematiker und Physiker Serie 3 HS 09

URL: http://www.ti.inf.ethz.ch/ew/courses/Info1_09/

Skript-Aufgabe 2 (4 Punkte)

Which of the following character sequences are not C++ expressions, and why not? Here, `a` and `b` are variables of type `int`.

(a)	`1*(2*3)`	*(b)*	`a=(b=5)`	*(c)*	`1=a`	*(d)*	`(a=1)`
(e)	`(a=5)*(b=7)`	*(f)*	`(1`	*(g)*	`(a=b)*(b=5)`	*(h)*	`(a*3)=(b*5)`

Skript-Aufgabe 3 (4 Punkte)

For all of the expressions that you have identified in Exercise 2, decide whether these are lvalues or rvalues, and explain your decisions.

Skript-Aufgabe 5 (4 Punkte)

Which of the following (rather stupid) programs are syntactically incorrect (w.r.t. the usage of `const`), and why? Among the correct ones, which programs do not adhere to the **Const Guideline**, and why?

a)
```
int main ()
{
  const int a = 5;
  int b = a;
  b = b*2;
  return 0;
}
```

b)
```
#include <iostream>
int main ()
{
  const int a = 5;
  std::cin >> a;
  std::cout << a + 5;
  return 0;
}
```

c)
```
#include <iostream>
int main ()
{
  const int a;
  int b;
  std::cin >> b;
  std::cout << a;
  return 0;
}
```

d)
```
int main ()
{
  const int a = 5;
  int b = 2*a;
  int c = 2*b;
  b = b*b;
  return 0;
}
```

e)
```
int main ()
{
  const int a = 5;
  const int b = (a = 6);
  return 0;
}
```

f)
```
int main ()
{
  const int a = 5;
  a = 5;
  return 0;
}
```

g)
```
#include<iostream>
int main ()
{
  int a = 5;
  a = a*a;
  int b = a;
  b = b*b;
  const int c = b;
  std::cout << c*c;
  return 0;
}
```

Skript-Aufgabe 8 (4 Punkte)

Write a program `power20.cpp` that reads an integer a from standard input and outputs a^{20} using at most five multiplications.

Die **Aufgaben 11** und **12** aus den Vorlesungsunterlagen sind die **Challenge Aufgaben** und geben jeweils 8 Punkte, wenn sie richtig gelöst werden.

Abgabe: Bis 13. Oktober 2009, 15.15 Uhr.