Practice problems on for loops, while loops, and nested loops: Write C++ programs to produce the output described in each of the following problems.

(1) The largest factor of a number (the user supplies the number):

number = 24, largest factor = 12

(2) An empty diamond of stars (the user supplies the height)

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* * 
* * * 
* * * * 
* * * 
* * 
* 

(3) An X of stars (the user supplies the height)

* 
  * 
  * * 
  * * * 
  * * 
  * 

(4) A pattern of 0’s surrounded by *’s (the user supplies height and width)

************
*0*0*0*0*0*
************
*0*0*0*0*0*
************

(5) A multiplication table (user supplies the size)


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1 2 3 4 5 6 
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1* 1 2 3 4 5 6
2* 2 4 6 8 10 12
3* 3 6 9 12 15 18
4* 4 8 12 16 20 24
5* 5 10 15 20 25 30
6* 6 12 18 24 30 36
```

(6) Sum of the digits of a number (user supplies the number)

number = 245, sum of digits = 11