

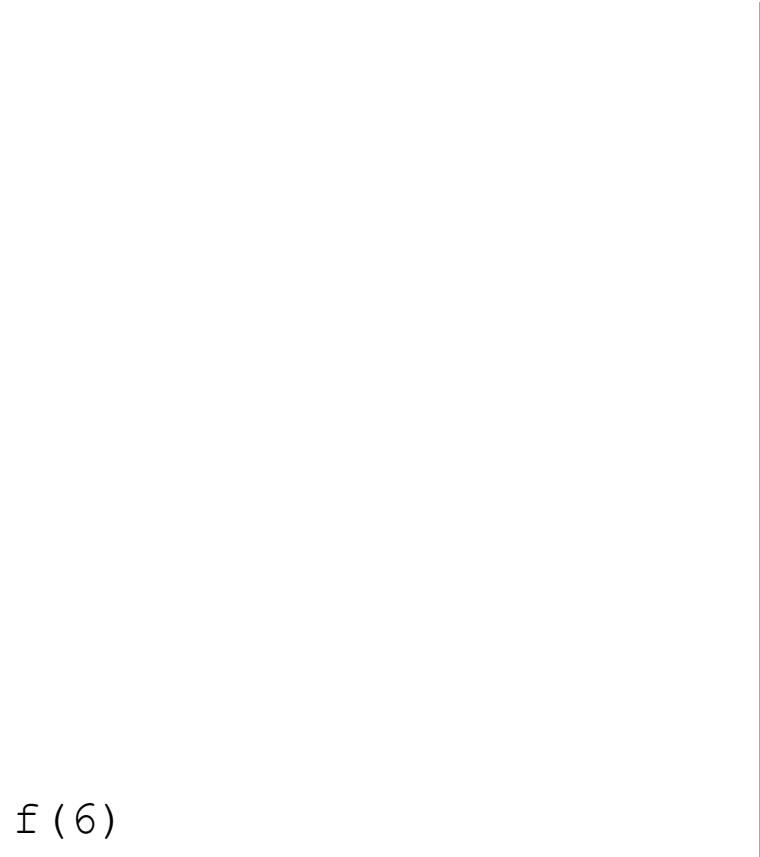
Recursive method tracing
Stack based approach to
2004 AP CS A Multiple Choice #26

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Methods f and g are mutually recursive.

Each method makes only 1 recursive call so there is no need to track line numbers.

The initial call is $f(6)$.



$g(5)$

$f(6)$

$f(4)$

$g(5)$

$f(6)$

$g(3)$

$f(4)$

$g(5)$

$f(6)$

$f(2)$

$g(3)$

$f(4)$

$g(5)$

$f(6)$

$g(1)$

$f(2)$

$g(3)$

$f(4)$

$g(5)$

$f(6)$

$f(0)$

$g(1)$

$f(2)$

$g(3)$

$f(4)$

$g(5)$

$f(6)$

~~f(0)~~

returns 0

g(1)

f(2)

g(3)

f(4)

g(5)

f(6)

~~f(0)~~ returns 0

~~g(1)~~ returns 1

f(2)

g(3)

f(4)

g(5)

f(6)

~~f(0)~~ returns 0

~~g(1)~~ returns 1

~~f(2)~~ returns 1

g(3)

f(4)

g(5)

f(6)

~~f(0)~~ returns 0

~~g(1)~~ returns 1

~~f(2)~~ returns 1

~~g(3)~~ returns 4

f(4)

g(5)

f(6)

~~f(0)~~ returns 0

~~g(1)~~ returns 1

~~f(2)~~ returns 1

~~g(3)~~ returns 4

~~f(4)~~ returns 4

g(5)

f(6)

~~f(0)~~ returns 0

~~g(1)~~ returns 1

~~f(2)~~ returns 1

~~g(3)~~ returns 4

~~f(4)~~ returns 4

~~g(5)~~ returns 9

f(6)

~~f(0)~~ returns 0

~~g(1)~~ returns 1

~~f(2)~~ returns 1

~~g(3)~~ returns 4

~~f(4)~~ returns 4

~~g(5)~~ returns 9

~~f(6)~~ returns 9