

Review 8-2

1. Fill in the blanks in the table below.

$p[i]$: The price for a rod of length i .

$r[i]$: The maximum revenue for a rod of length i .

$s[i]$: The length of the leftmost piece when the revenue is maximum.

i	0	1	2	3	4	5	6	7	8	9	10
$p[i]$	0	1	5	8	9	10	17	17	20	24	30
$r[i]$											
$s[i]$											

2. Fill in the blanks in the following pseudocode for EXTENDED-BOTTOM-UP-CUT-ROD.

EXTENDED-BOTTOM-UP-CUT-ROD (p, n)

let $r[0..n]$ and $s[0..n]$ be new arrays

$r[0] = 0$

for $j = 1$ **to** n

$r[j] = -\infty$

for $i = 1$ **to** j

if $r[j] < p[i] + r[j-i]$

return r and s

3. Fill in the blanks in the following pseudocode for PRINT-CUT-ROD-SOLUTION.

PRINT-CUT-ROD-SOLUTION (p, n)

$(r, s) = \text{EXTENDED-BOTTOM-UP-CUT-ROD}(p, n)$

while

print $s[n]$

4. Fill in the blanks in the following pseudocode for M-CUT-ROD.

M-CUT-ROD (p, n)

let $r[0..n]$ be a new array

for $i = 0$ **to** n

$r[i] = -\infty$

return M-CUT-ROD-A (p, n, r)

M-CUT-ROD-A (p, n, r)

if $r[n] \geq 0$

return

if $n == 0$

else $q = -\infty$

for $i = 1$ **to** n

return q