

Homework 4

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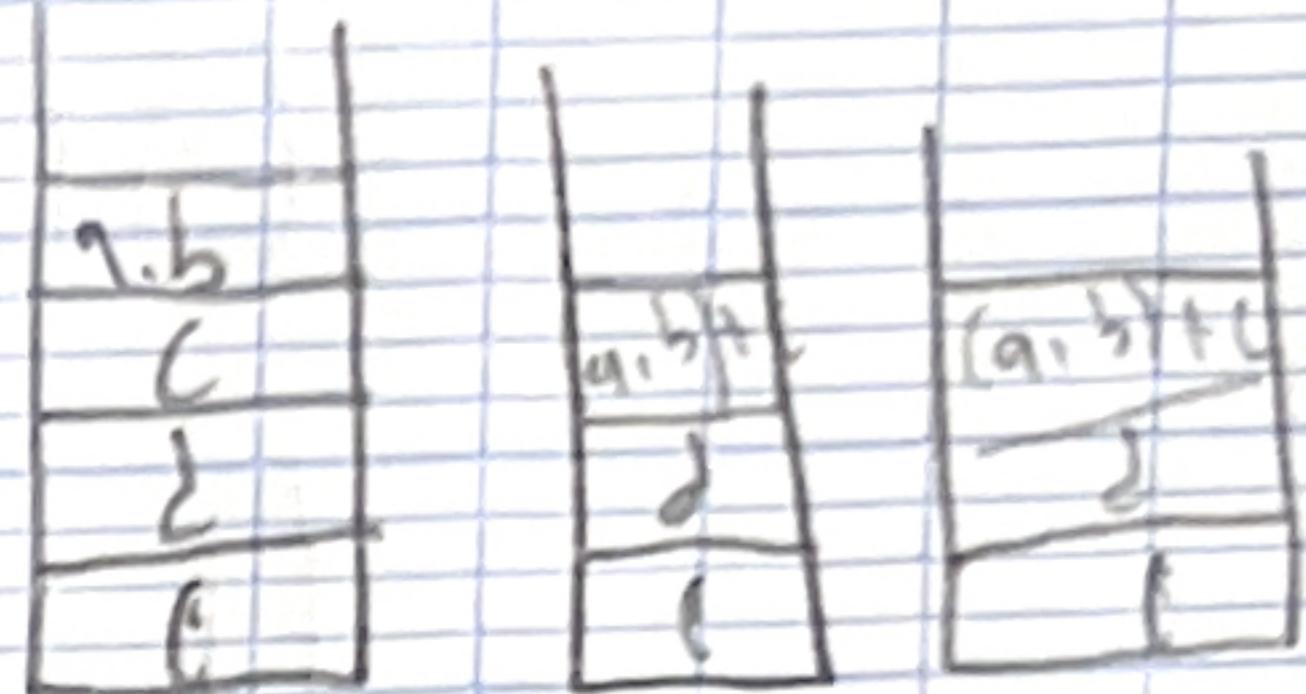
Question 1:

prefix \rightarrow infix

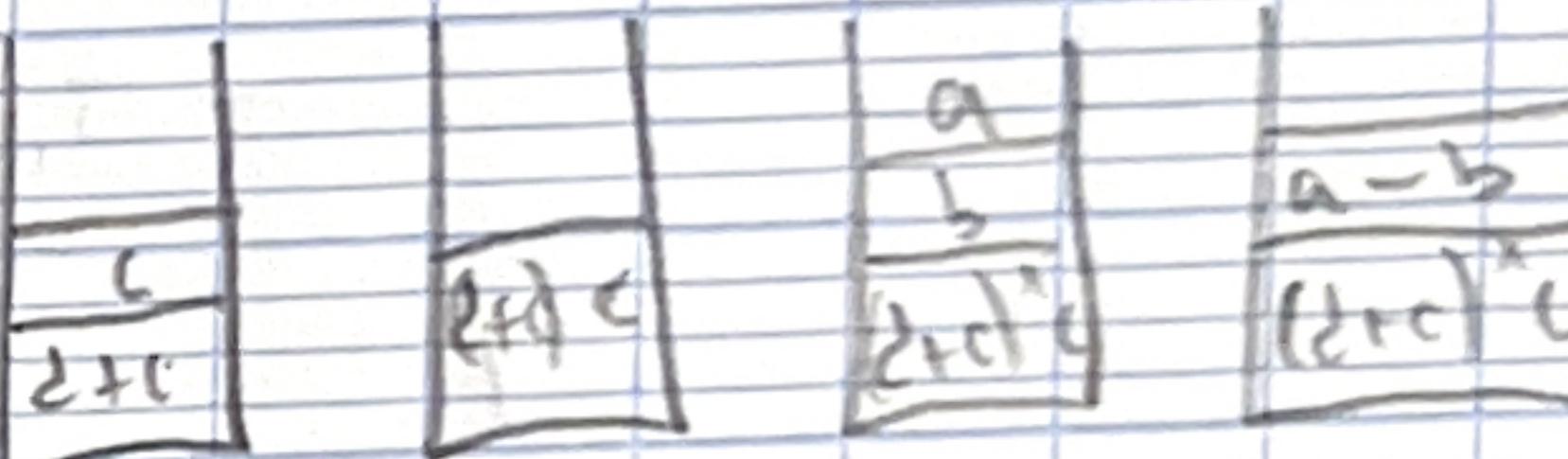
$$a - - / + ^ * a b c d e$$

$$c d c b a ^ * + / -$$

$$\frac{((a \cdot b) + c)}{d} - c$$



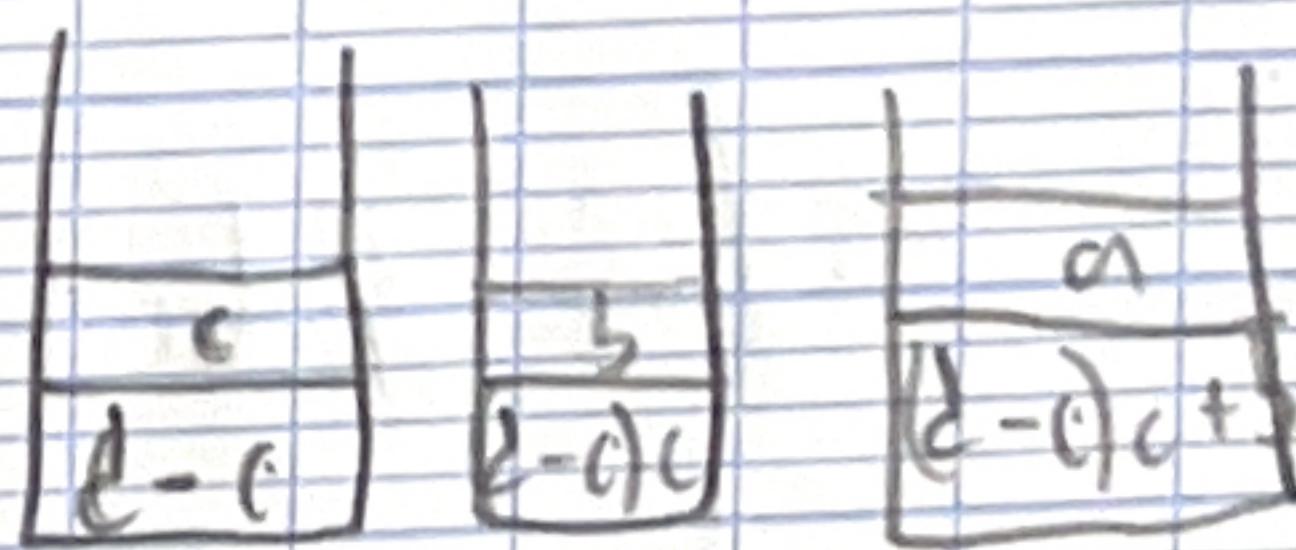
$$b - / - a b ^ * c + d c$$



$$a \cdot b / (b + a)^* c$$

$$c - / a + b ^ * c - d e$$

$$a / ((d - c)^* c) + b)$$



Question 2:

prefix \rightarrow postfix

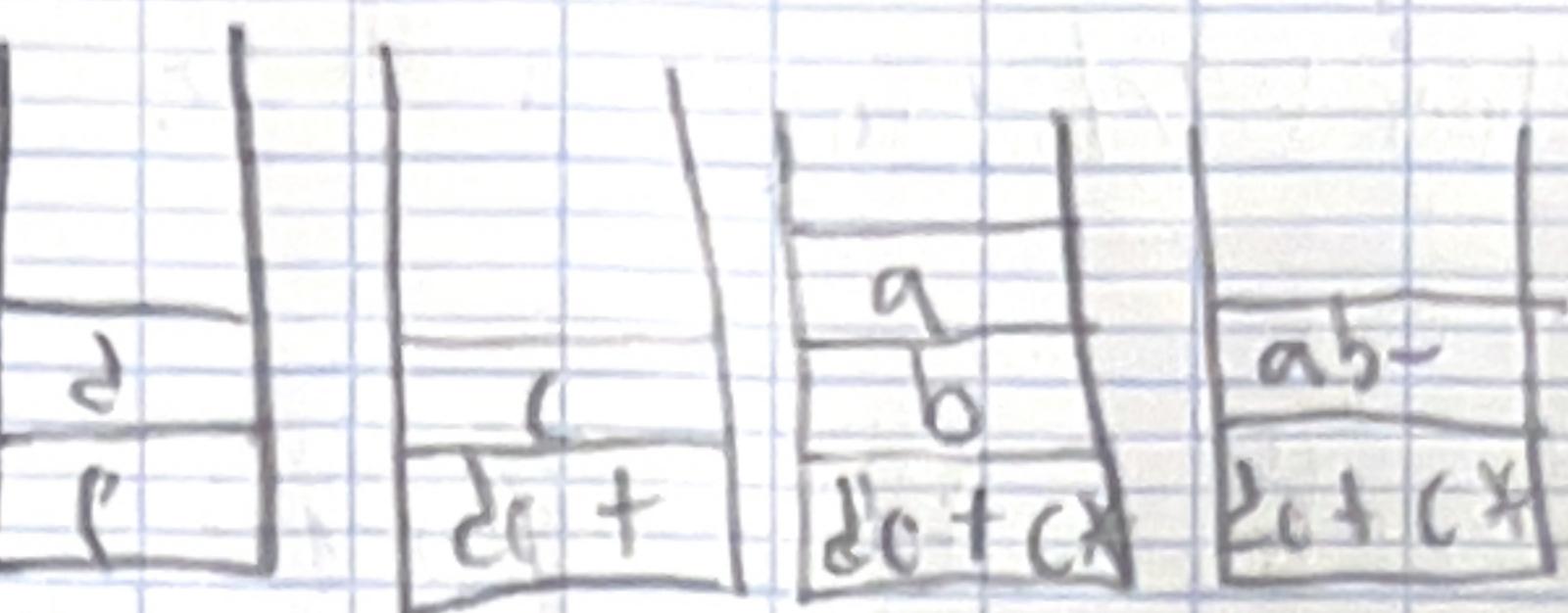
$$a - - / + ^ * a b c d e$$

$$a b ^ * c + d / e -$$



$$b - / - ab^*c + dc$$

$$ab - dc + c^*$$



Question 3 infix \rightarrow prefix

$$a - (a+b) - (c / (d+c))$$

$$(+ ab) - ((c / (+ dc)))$$

$$(+ ab) - (/ (c + dc))$$

$$- + ab / (c + dc)$$

$$b - a / ((b/c)^* (d - c))$$

$$a / ((b/c)^* (- dc))$$

$$a / (((/ bc)^* (- dc)))$$

$$a / * / bc - dc$$

$$/ a^* / bc - dc$$

$$c) (a / (b / c))^* (d - e)$$

$$(a / (b / c))^* (-bc)$$

$$(a / (1bc))^* (-dc)$$

$$(1a(1bc))^* (-dc)$$

$$* | a | bc - dc$$

Question 4

infix \rightarrow postfix

a)

$$(a+b) - (c / (cd + e))$$

$$ab+ - (c / (cd +))$$

$$ab+ - (c cd +)$$

$$ab+ (cd +) -$$

$$b) a / ((b / c)^* (d - e))$$

$$a / ((c / bc)^* (cd -))$$

$$a / ((c / bc)(cd -)^*$$

$$abc / cd - * /$$

c) $(a(b/c))^* (d-c)$

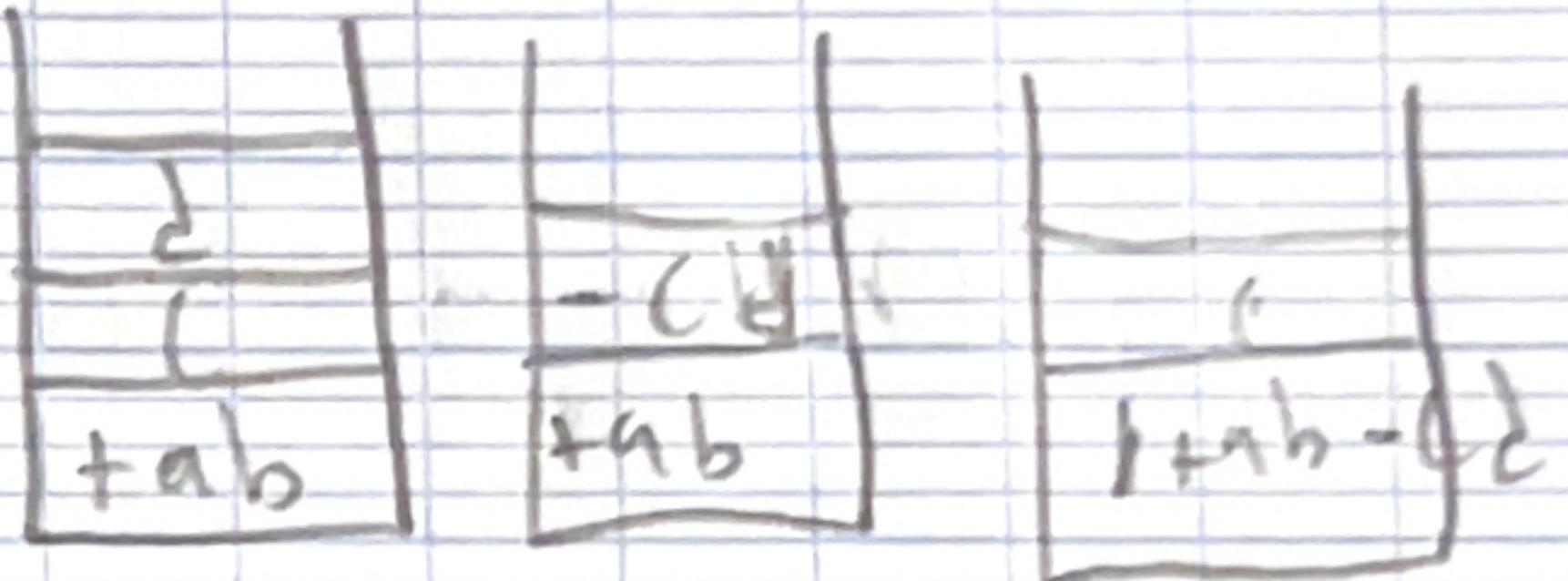
$(a(b/c))^* (d-c)$

$abc // dc - ^*$

Question 5 postfix \rightarrow prefix

a) $ab + cd - / c +$

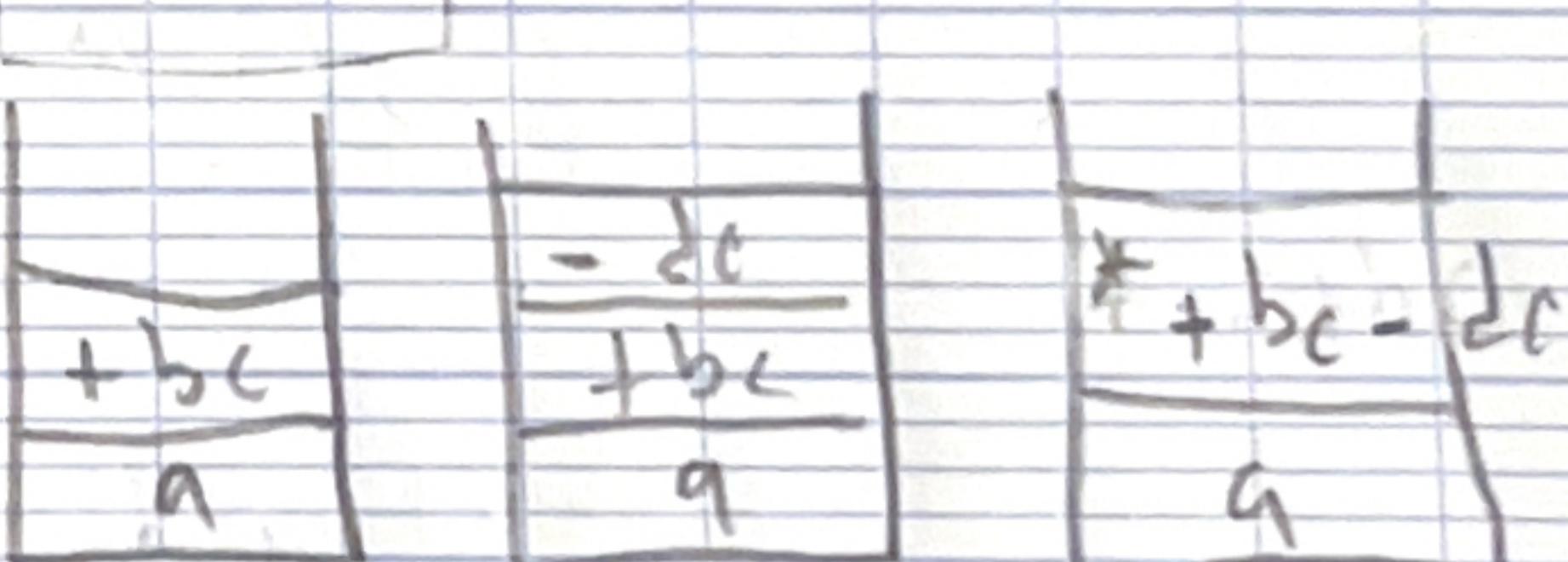
$+ / + ab - cd \circ$



b)

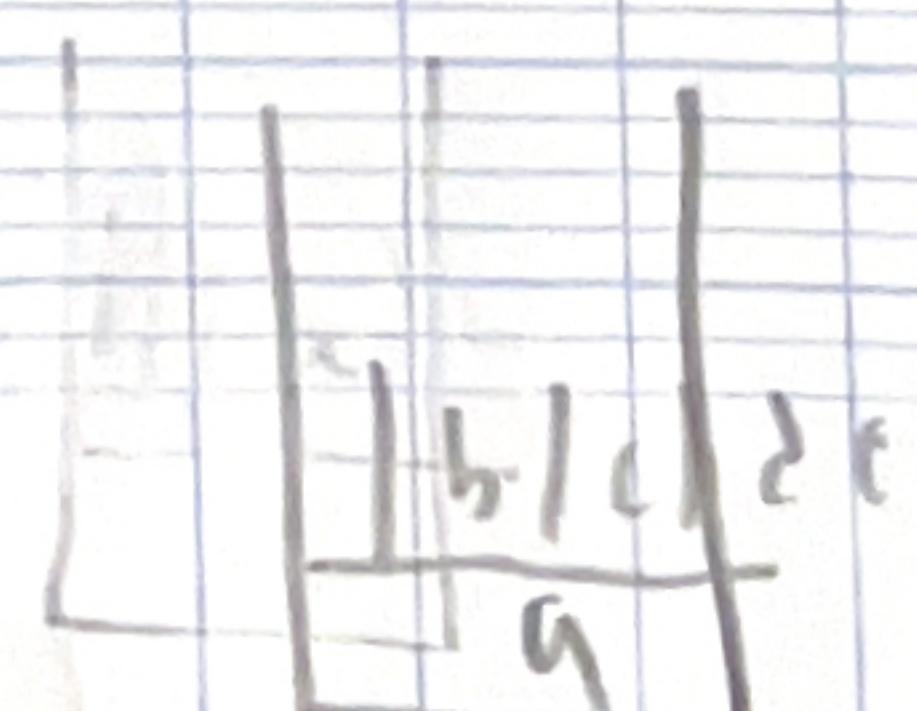
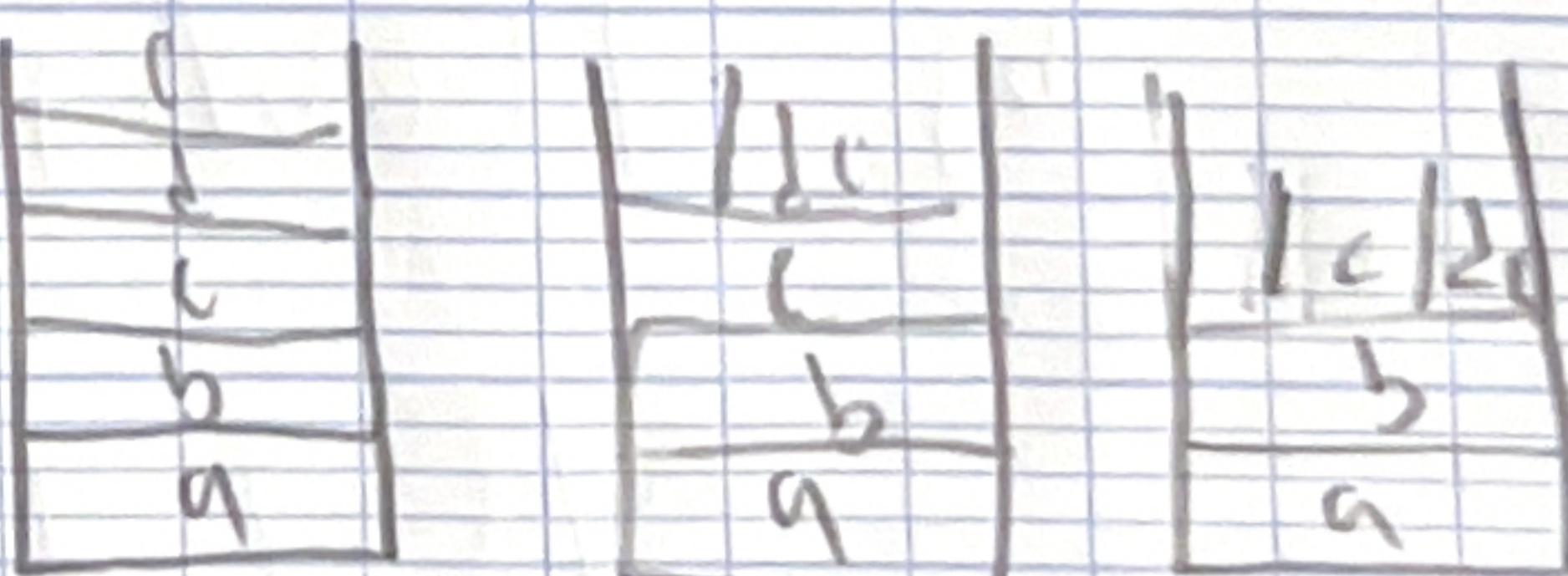
b) $abc + dc - ^* -$

$- a^* + bc - dc$



c) $abc \geq c // /$

$|a| b | c | \geq c$



Question 2

$$(5-x)^* y + 6 / (x+z)$$

infix \rightarrow prefix

$$(-5x)^* y + 6 / (+xz)$$

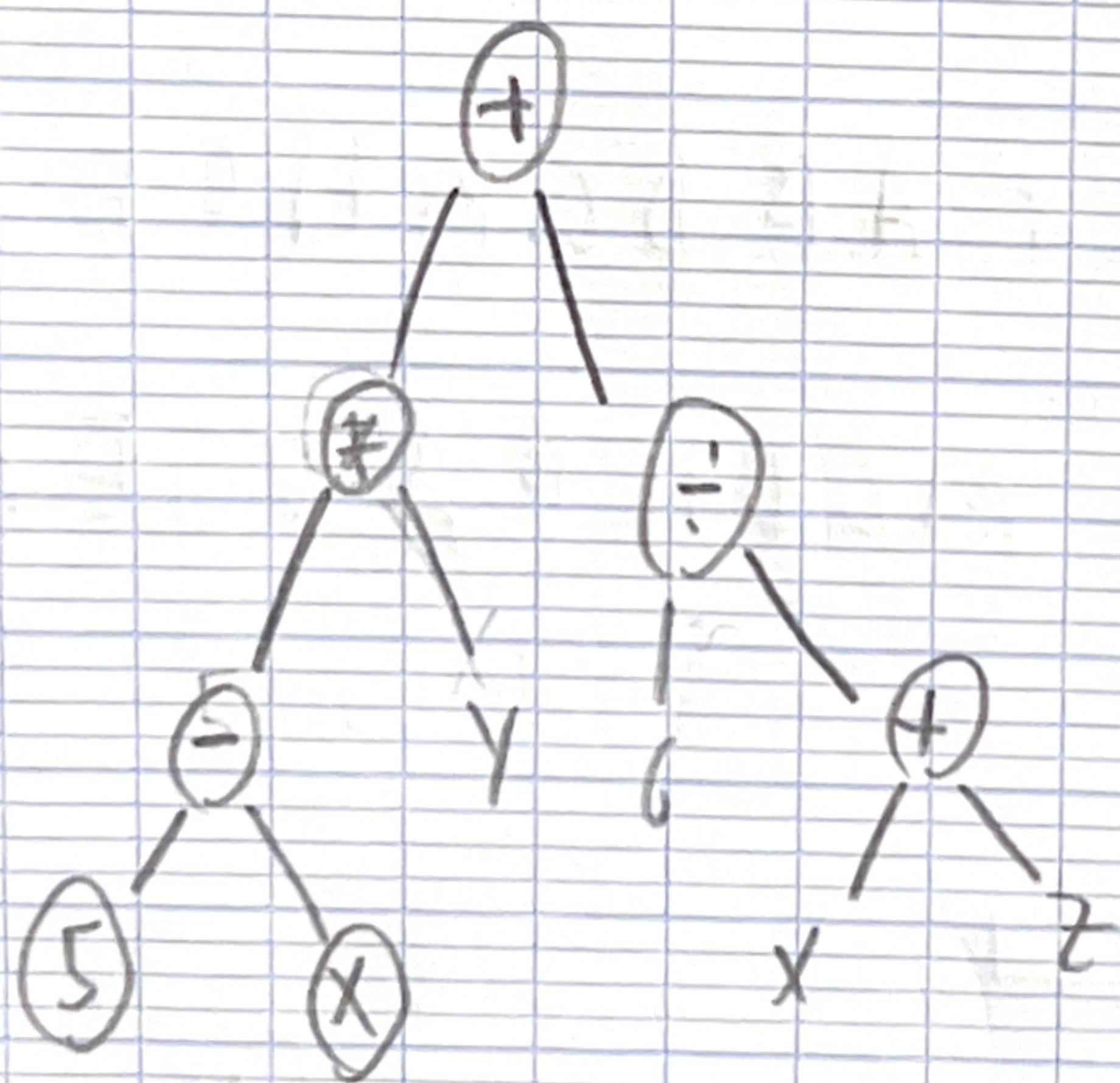
$$* y - 5x + (/ (+xz))$$

$$+ * y - 5x 6 / (+xz)$$

$$/ - + * - 5x y 6 / + x z$$

Question 3

a)



b) PLR order: $+ * - 5x y / 6 + x z$

LRR order: $5x - * y + 6 + x z$

i) LPR order: $5 - x + y \cdot c / x + z$

c) The results match

Question 9

a) PLR: $+ - * + abcd / * e - xy - zt$

b) LR_P: $ab + c * d - cx y - * zt - / +$

c) LPR: $a + b * c - d + (e * (x - y)) / (z - t)$

Question 10

b) PLR: A B D G M H C E J N F K O L

c) LPR: M G D H B A N J E C O K F L

Question 12

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public boolean isLinear(Node p) {
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```
    if (p == null) {
```

```
        return true;
```

~~if (p.left == null || p.right == null) {~~

~~p.left = p.right = null; }~~

if (p.left == null) {

return isLinear(p, left & right);

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