Level *

GRAPHING FUNCTIONS Graph the function.

21. $f(x) = \begin{cases} 2x, & \text{if } x \geq 1 \\ -x + 3, & \text{if } x < 1 \end{cases}$

22. $f(x) = \begin{cases} x + 6, & \text{if } x \leq -3 \\ -\frac{2}{3}x - 3, & \text{if } x > -3 \end{cases}$

23. $f(x) = \begin{cases} 2x + 13, & \text{if } x \geq -5 \\ x + \frac{1}{2}, & \text{if } x < -5 \end{cases}$

24. $f(x) = \begin{cases} -x, & \text{if } x > 2 \\ x - 4, & \text{if } x \leq 2 \end{cases}$

25. $f(x) = \begin{cases} 3x - 14, & \text{if } x \leq 4 \\ -2x + 6, & \text{if } x > 4 \end{cases}$

26. $f(x) = \begin{cases} x - 8, & \text{if } x < 9 \\ \frac{1}{3}x - 2, & \text{if } x \geq 9 \end{cases}$

GRAPHING STEP FUNCTIONS Graph the step function.

27. $f(x) = \begin{cases} 3, & \text{if } -1 \leq x < 2 \\ 5, & \text{if } 2 \leq x < 4 \\ 8, & \text{if } 4 \leq x < 9 \\ 10, & \text{if } 9 \leq x < 12 \end{cases}$

28. $f(x) = \begin{cases} 6.5, & \text{if } -4 \leq x < -2 \\ 4.1, & \text{if } -2 \leq x < 1 \\ 0.9, & \text{if } 1 \leq x < 3 \\ -2.1, & \text{if } 3 \leq x < 6 \end{cases}$

29. $f(x) = \begin{cases} -1, & \text{if } 0 \leq x < 1 \\ -3, & \text{if } 1 \leq x < 2 \\ -5, & \text{if } 2 \leq x < 3 \\ -7, & \text{if } 3 \leq x < 4 \\ -9, & \text{if } 4 \leq x < 5 \end{cases}$

30. $f(x) = \begin{cases} 4, & \text{if } -10 < x \leq -8 \\ 6, & \text{if } -8 < x \leq -6 \\ 8, & \text{if } -6 < x \leq -4 \\ 9.1, & \text{if } -4 < x \leq -2 \\ 10, & \text{if } -2 < x \leq 0 \end{cases}$

Make sure that you try at least 2 from each section and get them fully correct before leveling up.

Level **

EVALUATING FUNCTIONS Evaluate the function for the given value of x.

$f(x) = \begin{cases} 5x - 1, & \text{if } x < -2 \\ x - 9, & \text{if } x \geq -2 \end{cases}$

13. $f(-4)$

14. $f(-2)$

15. $f(0)$

16. $f(5)$

$h(x) = \begin{cases} \frac{1}{2}x - 10, & \text{if } x \leq 6 \\ -x - 1, & \text{if } x > 6 \end{cases}$

17. $h(1)$

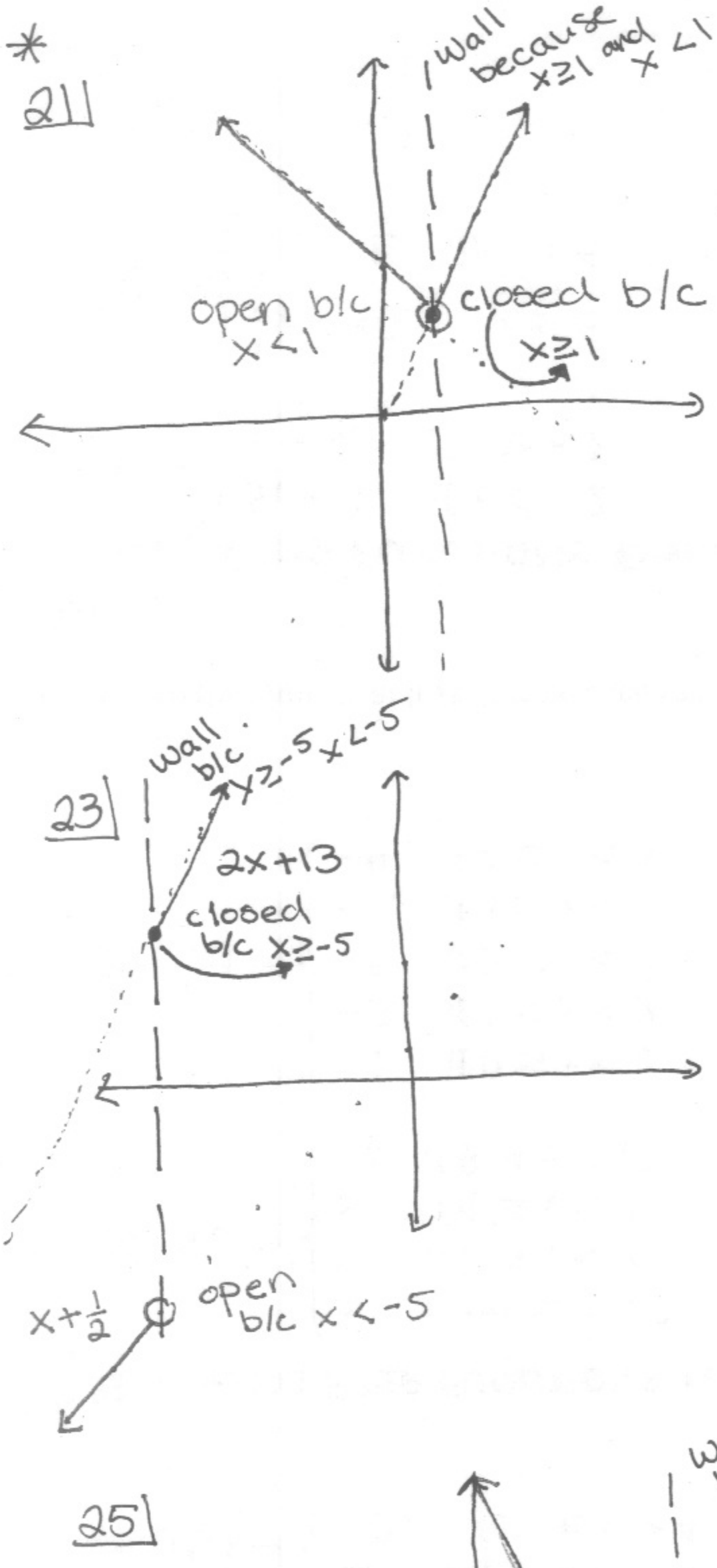
18. $h(-10)$

19. $h(6)$

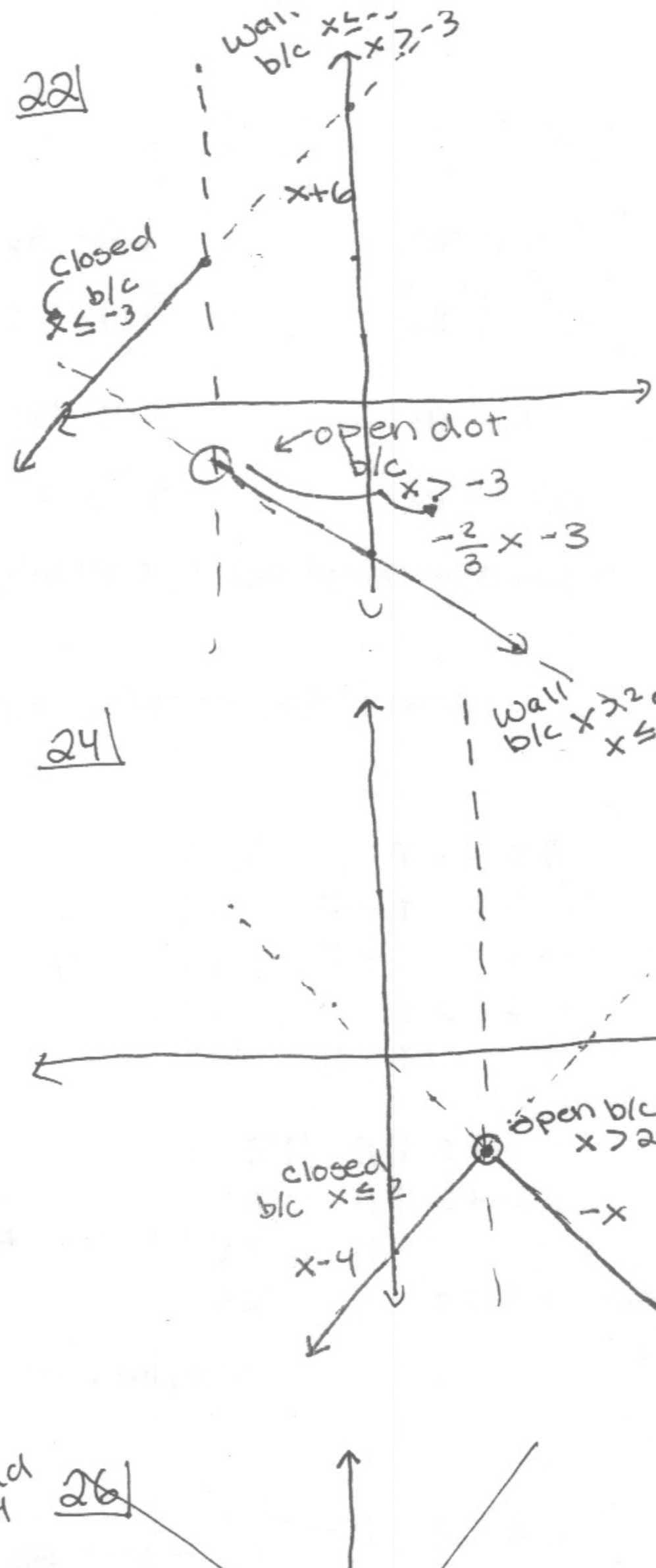
20. $h(0)$

*

21



22



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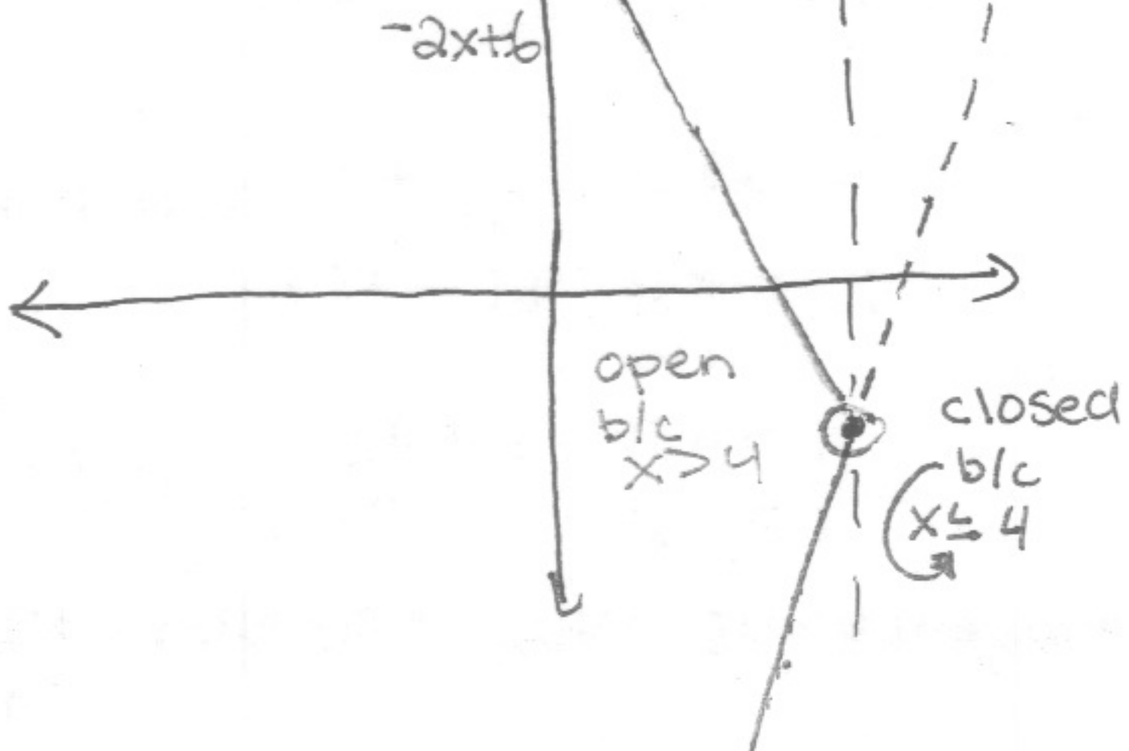

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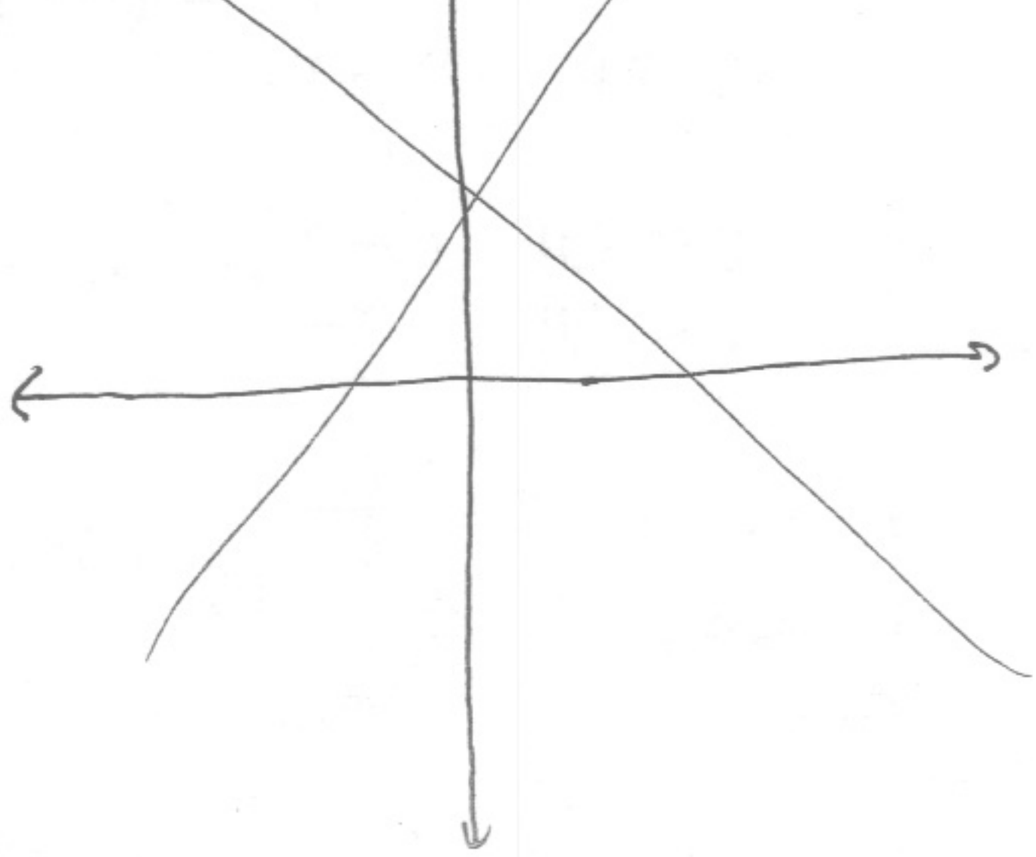

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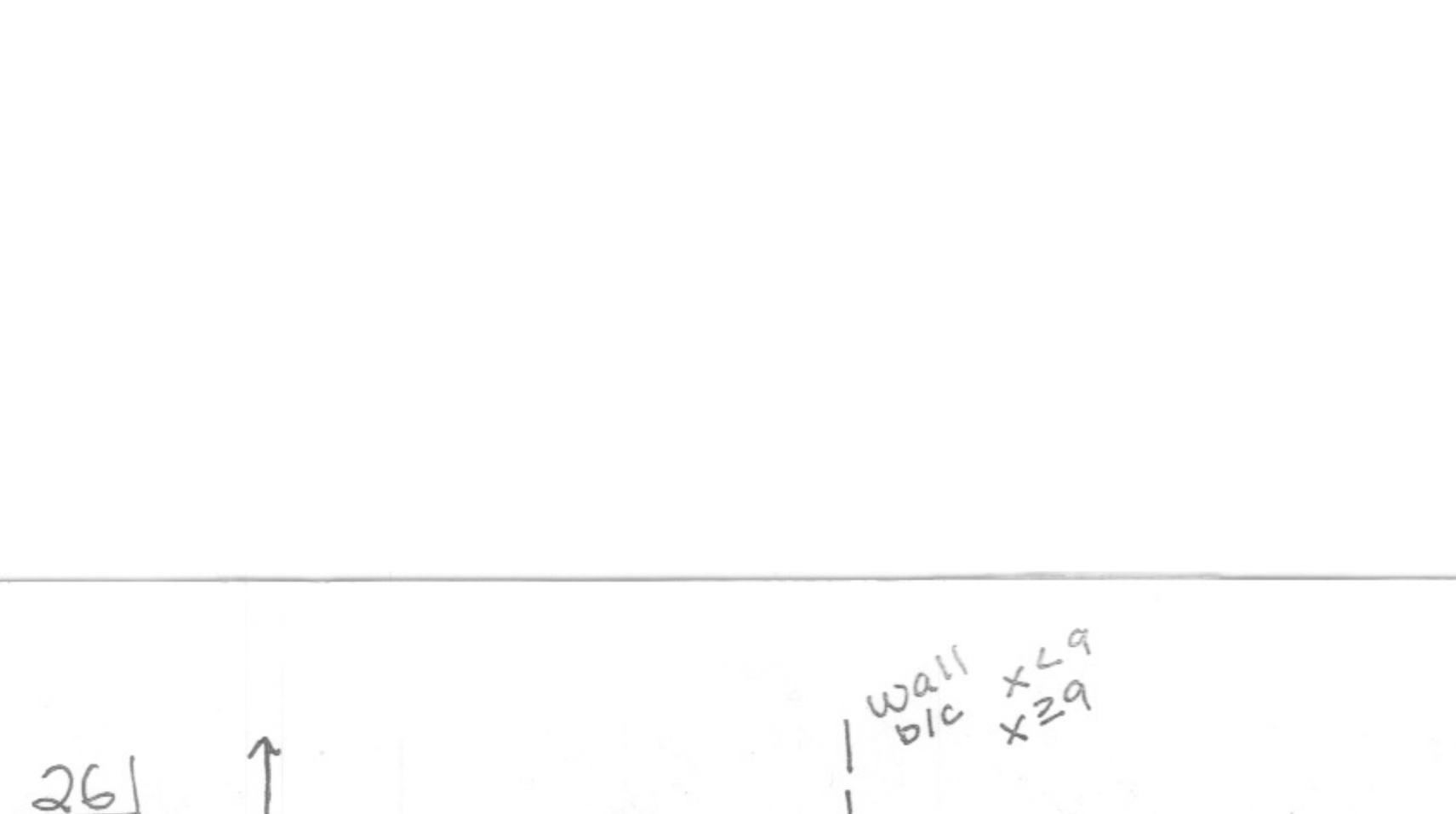
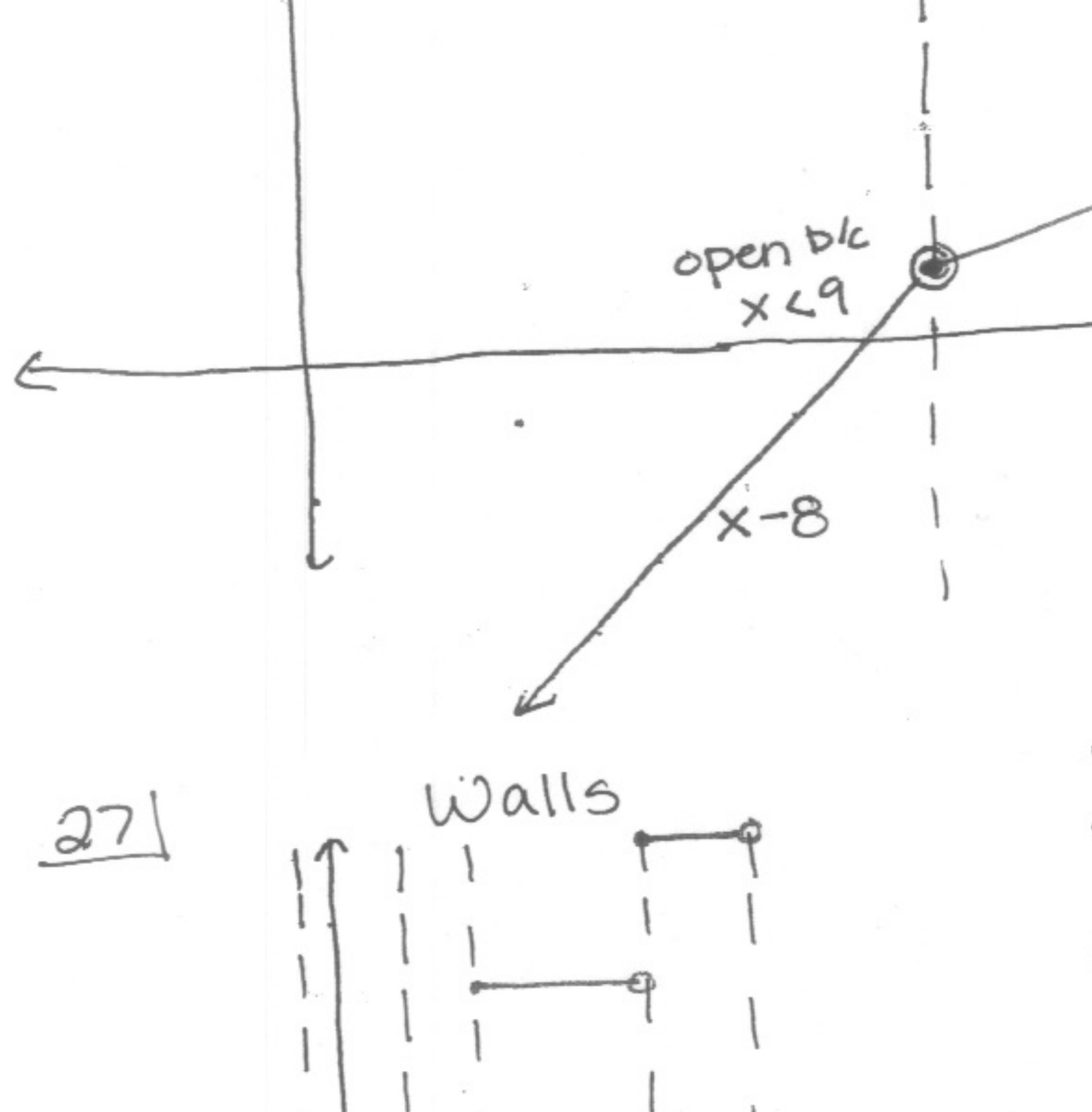
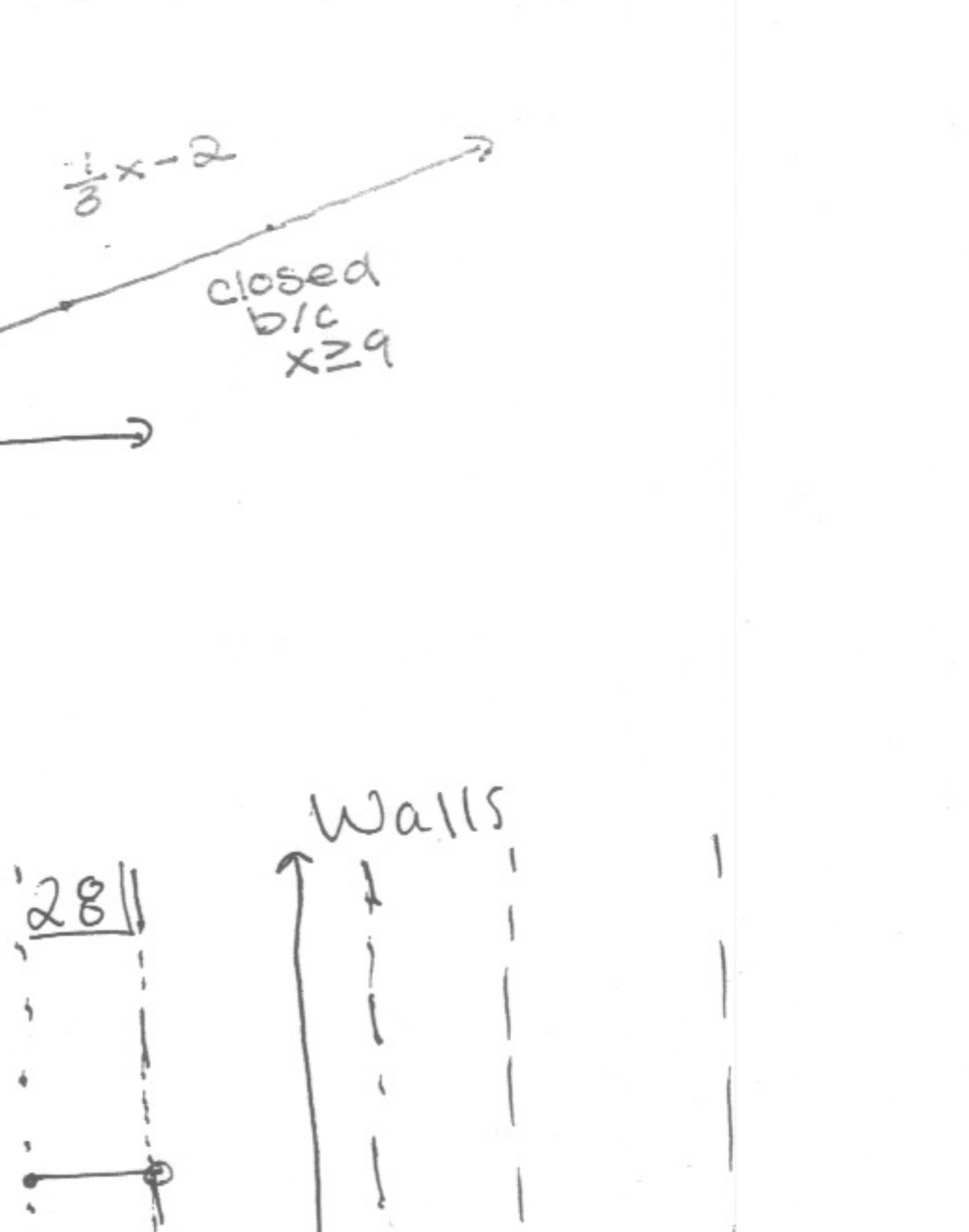

wall
b/c
x<9
x≥9
$\frac{1}{3}x-2$
closed
b/c
x≥9
open b/c
x<9
x-8

27


walls
-2
2
4
6
8
10
12
16
18
20

28


walls

29

wall

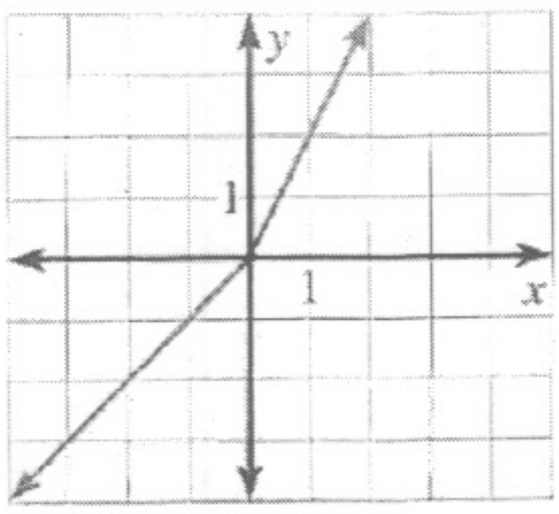
30

wall
mistake

Level ***

WRITING PIECEWISE FUNCTIONS **Write equations for the piecewise function whose graph is shown.**

35.



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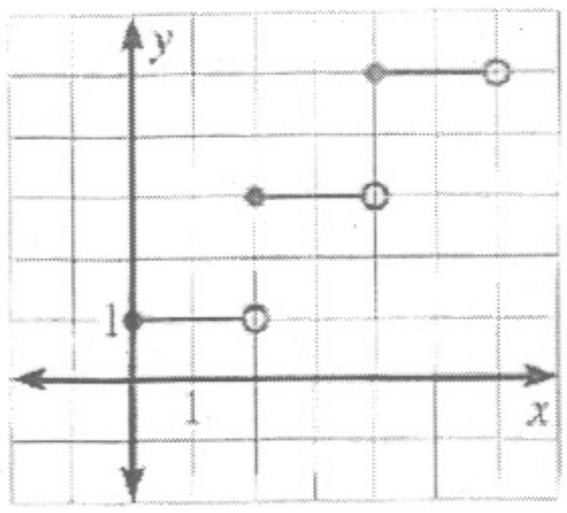

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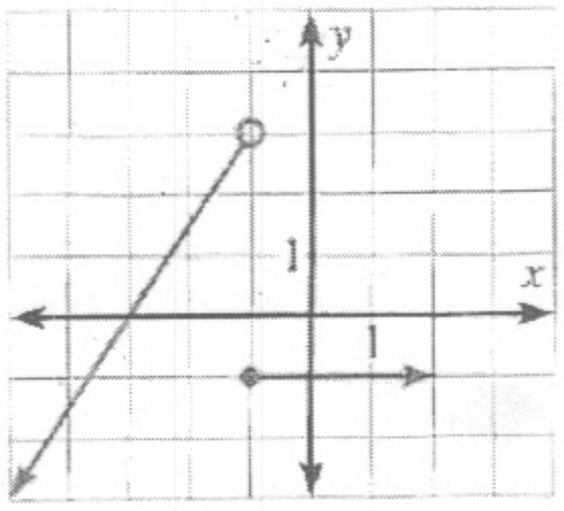

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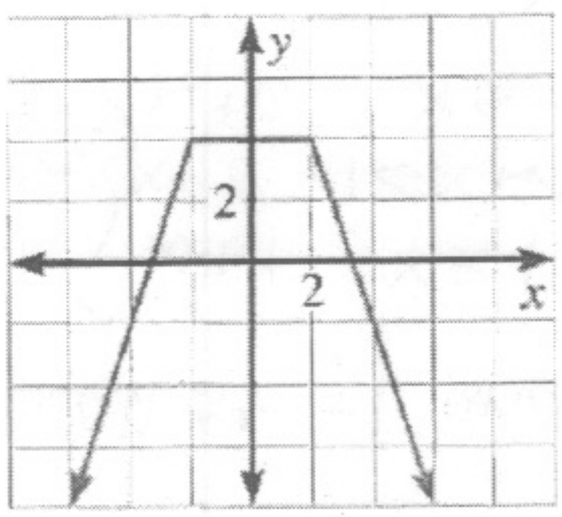

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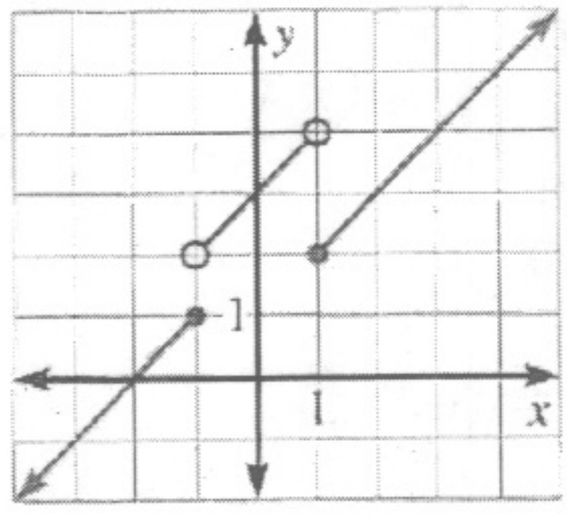
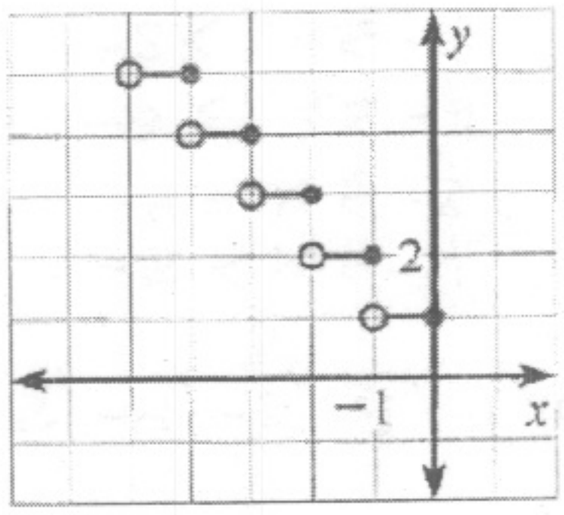


40.



35] The slope of the line changes so must have a wall at 0.

$$f(x)=\begin{cases} 2x & x\geq 0 \\ x & x<0 \end{cases}$$

slope when x is bigger than 0

y-int is 0

slope when x is less than 0

36] Walls at 0, 2, 4, 6

$$f(x)=\begin{cases} 1 & 0\leq x<2 \\ 3 & 2\leq x<4 \\ 5 & 4\leq x<6 \end{cases}$$

37] Wall at -1

$$f(x)=\begin{cases} -1 & x\geq -1 \\ \frac{3}{2}x+4 & x<-1 \end{cases}$$

38] Walls at -2 and 2

$$f(x)=\begin{cases} -3x+10 & x\geq 2 \\ 4 & -2<x<2 \\ 3x+10 & x\leq -2 \end{cases}$$

39] wall at -1 and 1

$$f(x)=\begin{cases} x+1 & x\geq 1 \\ x+3 & -1<x<1 \\ x+2 & x\leq -1 \end{cases}$$

40] walls at. -5, -4, -3, -2, -1, 0

$$f(x)=\begin{cases} 5 & -5<x\leq -4 \\ 4 & -4<x\leq -3 \\ 3 & -3<x\leq -2 \\ 2 & -2<x\leq -1 \\ 1 & -1<x\leq 0 \end{cases}$$