

Circle or box your final answers.

Determine if the sequence is arithmetic. Write yes or no.

1. 5, 9, 14, 20, ... **NO**

2. 10, 22, 34, 46, ... **YES**

Find the common difference for each arithmetic sequence. Then find the next three terms.

3. 20, 10, 0, -10, ... **D = -10**

4. 12, 15, 18, 21, ... **D = 3**

-20, -30, -40
24, 27, 30

Find the indicated term of each arithmetic sequence.

5. $a_1 = 10, d = 6$; Find 42nd term

6. 59, 56, 53, 50, ... Find the 27th term. **D = -3**

$a_{42} = 10 + 6(41)$

$a_{27} = 59 - 3(26)$

$a_{42} = 256$

$a_{27} = -19$

Given a term in an arithmetic sequence and the common difference, find the explicit formula.

7. $a_{14} = 64, d = 7$

$64 = a_1 + 7(13)$ $a_n = -27 + 7(n-1)$

$64 = a_1 + 91$ $a_n = -27 + 7n - 7$

$-27 = a_1$ $a_n = 7n - 34$

8. $a_{37} = -144, d = -3$

$-144 = a_1 - 3(36)$ $a_n = -36 - 3(n-1)$

$-144 = a_1 - 108$ $a_n = -36 - 3n + 3$

$-36 = a_1$ $a_n = -3n - 33$

A swim pass costs \$30 for the first month. Each month after that, the cost is \$20 per month. Riley wants to swim for 12 months.

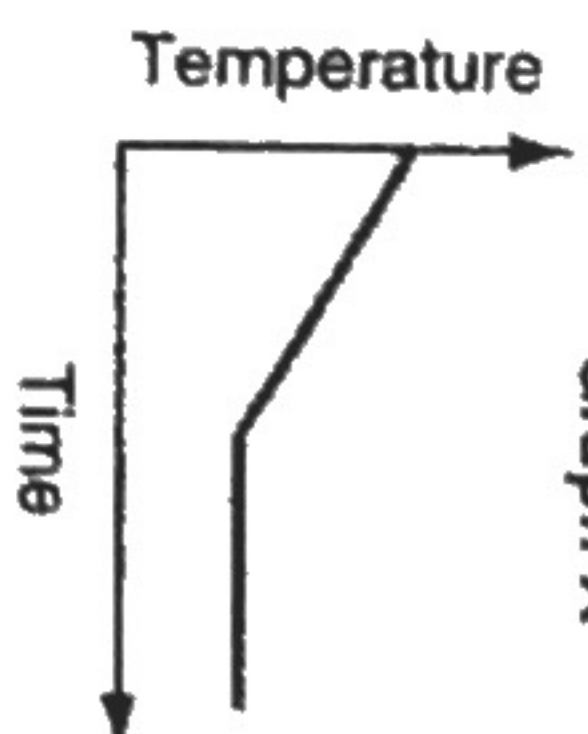
9. The sequence for this situation is arithmetic. What is the first term of this sequence? 30

10. What is the common difference? 20

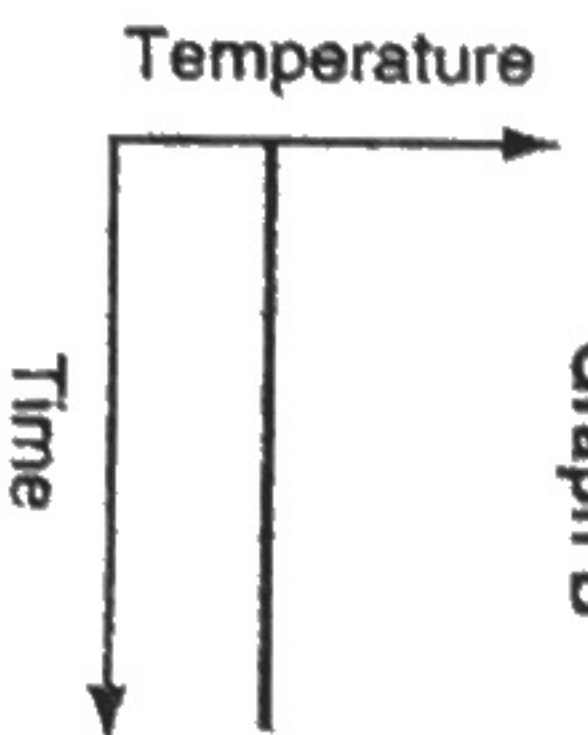
11. The 12th term will be the amount Riley spends for a one-year swim pass. Write the equation for finding the total cost of a one-year swim pass.
 $a_{12} = 30 + 20(11)$

12. What is the total amount of money Riley will spend for a one-year swim pass? \$250

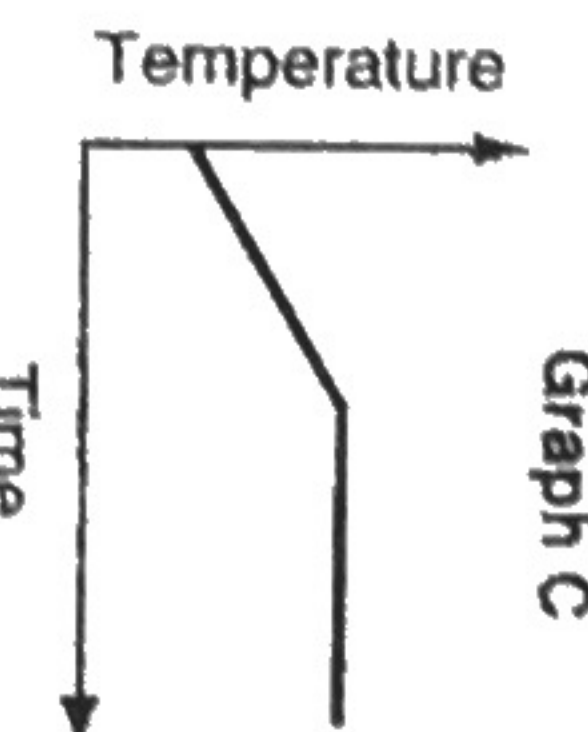
Choose the graph that best represents each situation.



Graph A



Graph B



Graph C

13. The temperature of the water in a glass remained constant. B

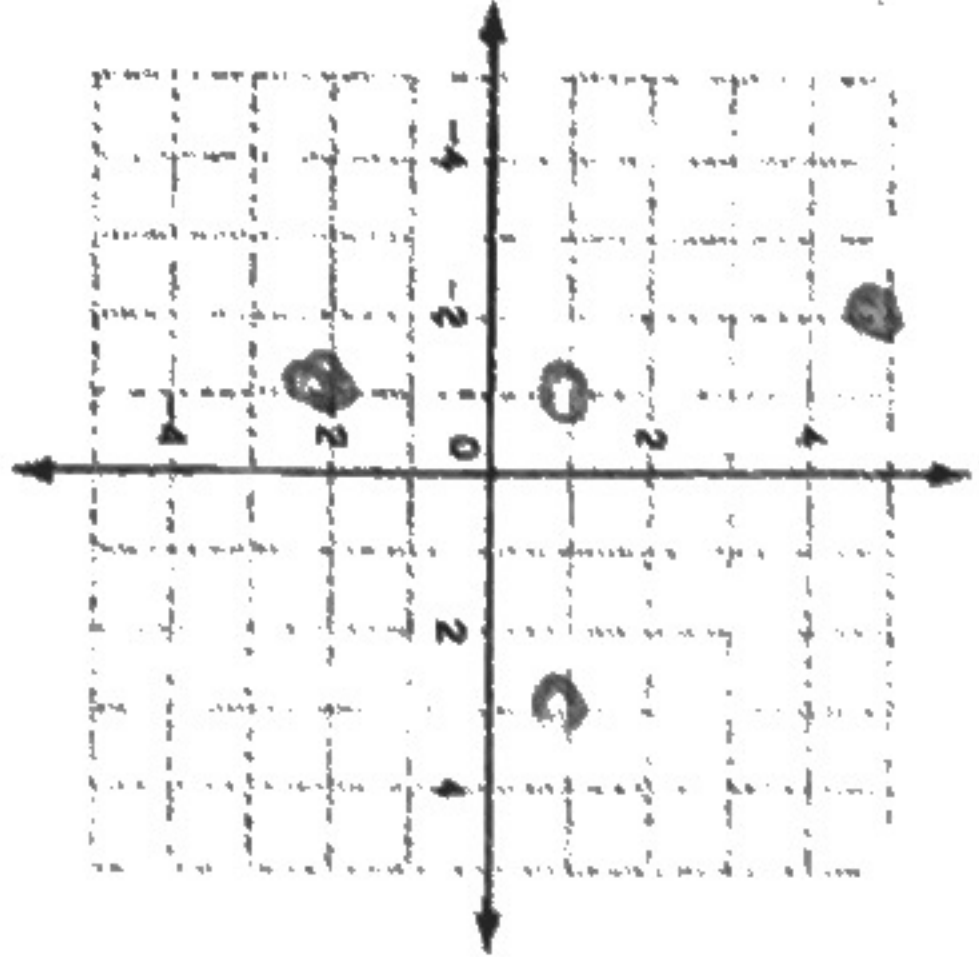
14. The temperature of the water in a glass rose steadily for several hours until it reached room temperature, then remained constant. C

15. The temperature of the water in a glass cooled down steadily with the addition of ice, then remained constant when all the ice had melted. A

Express each relation as a table, as a graph, and as a mapping diagram.

16. $\{(-2, 5), (-1, 1), (3, 1), (-1, -2)\}$

x	y
-2	5
-1	1
3	1
-1	-2



For each, write whether the given variable is independent or dependent.

17. Auto insurance costs increase with each accident and traffic violation.

• number of accidents/traffic violations: independent

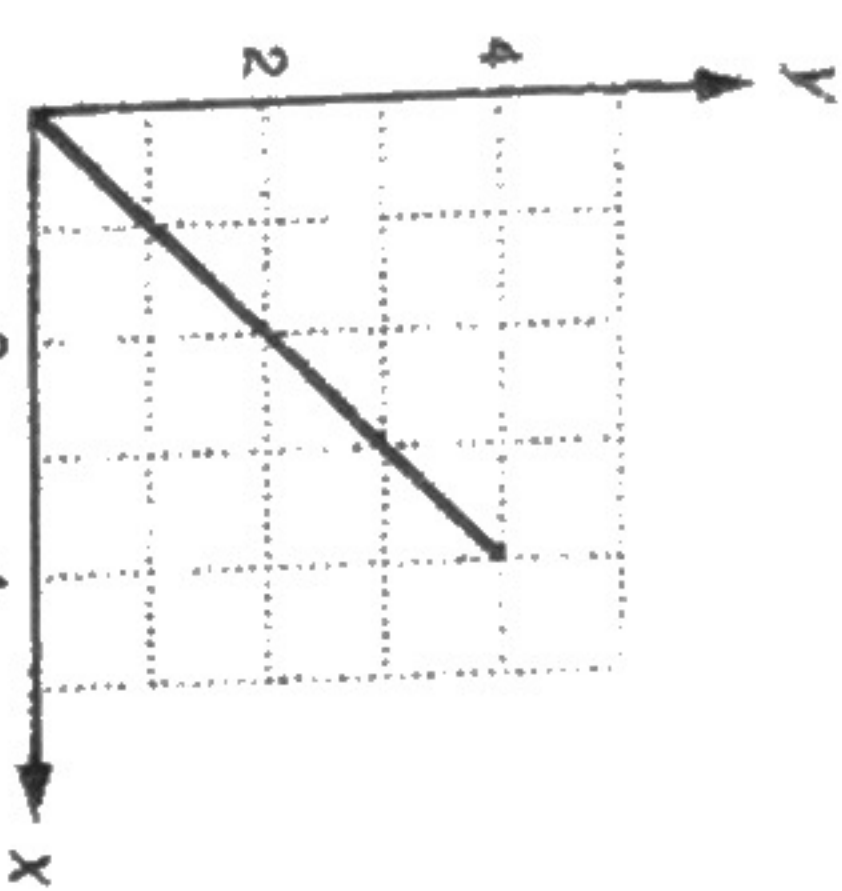
• cost of auto insurance: dependent

18. Christian is buying several DVDs that cost \$12 each.

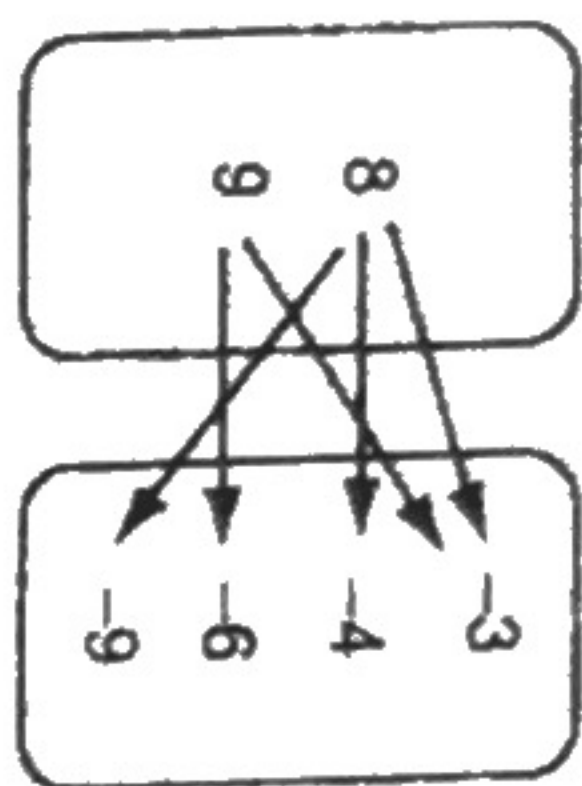
• total cost of the DVDs: dependent

• number of DVDs purchased: independent

Give the domain and range of each relation. Tell whether the relation is a function. Explain.



19. D: $0 \leq x \leq 4$
 R: $0 \leq y \leq 4$
 Function? Yes
 Explain: passes VLT



20. D: $8, 9$
 R: $-3, -4, -6, -9$
 Function? No
 Explain: both 8 and 9 repeats as x-values

x	y
1	4
2	5
0	6
1	7
2	8

21. D: $0, 1, 2$
 R: $4, 5, 6, 7, 8$
 Function? No
 Explain: x is used more than once w/ different y-values

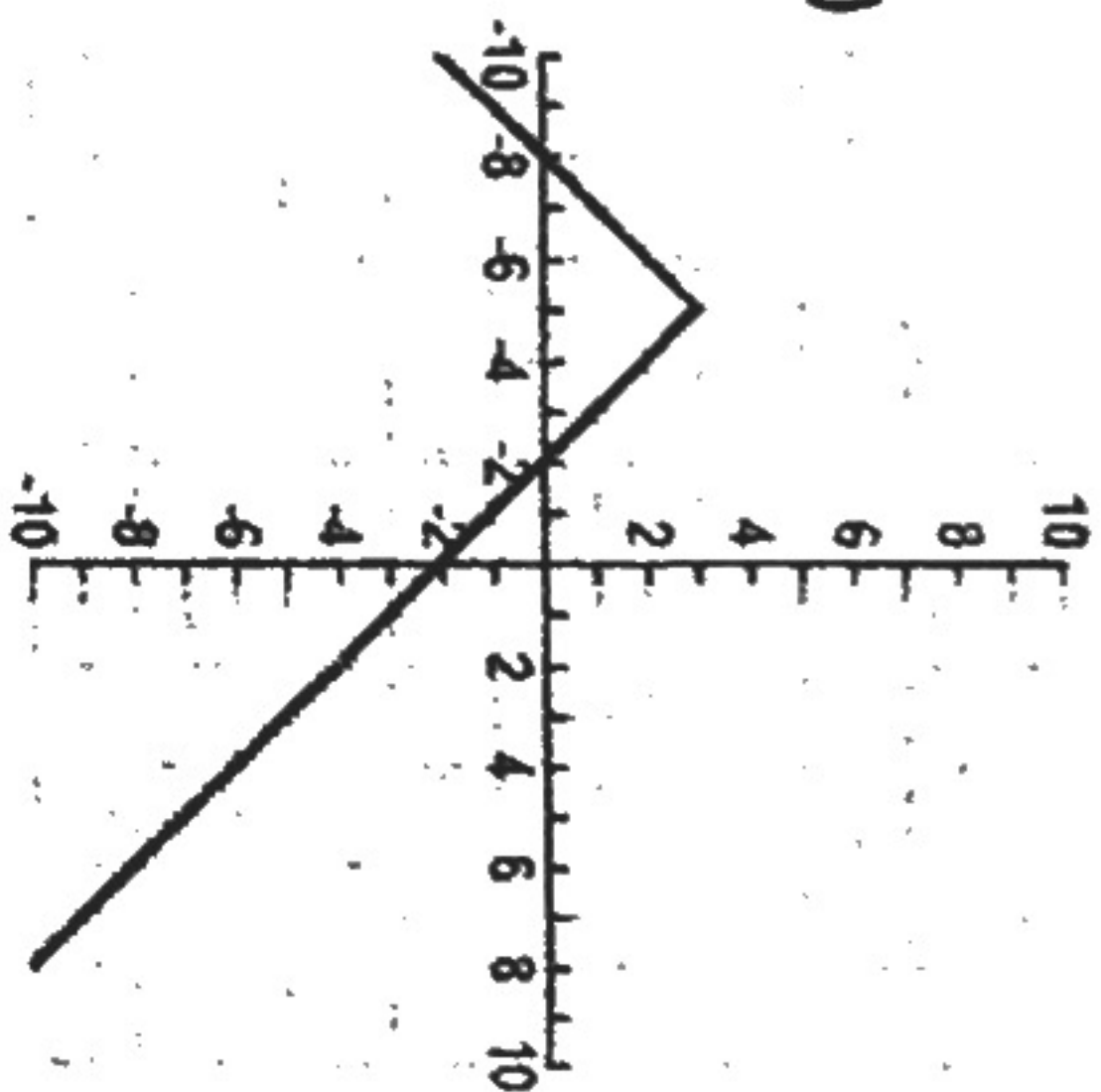
Evaluate each function for the given input values.
 22. For $f(x) = x + 7$, find $f(x)$ when $x = 3$ and when $x = -5$.
 $f(3) = 10$, $f(-5) = 2$

Complete the following.

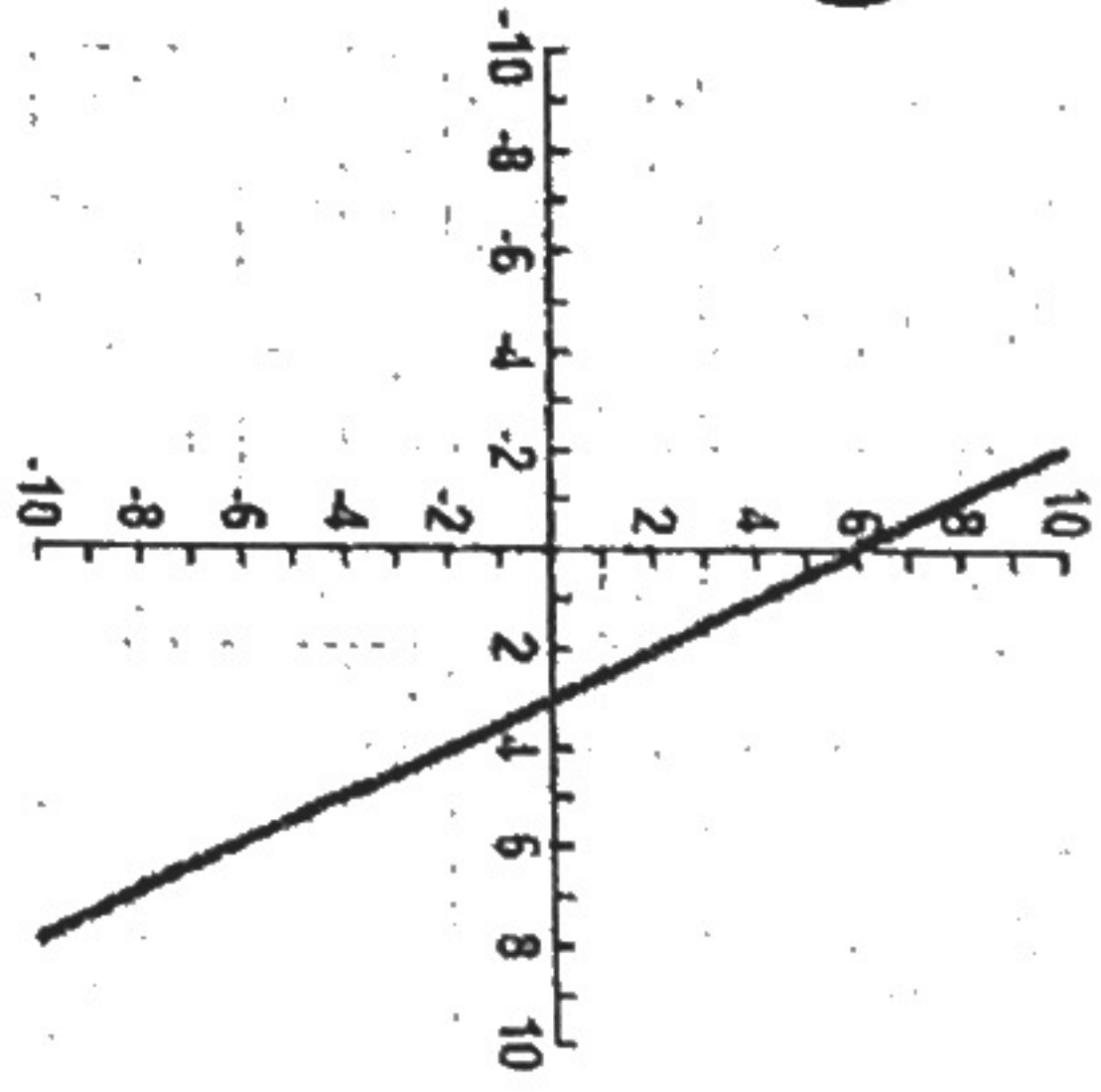
23. Marlena is making her own beaded bracelets.
 Each bracelet will have 10 beads. Write a function rule to describe the number of beads she will use.
 Find a reasonable domain and range for the function if Marlena makes up to 7 bracelets.
 rule: $y = 10x$
 domain: $0, 1, 2, 3, 4, 5, 6, 7$
 range: $0, 10, 20, 30, 40, 50, 60, 70$

For each graph below, tell the following:

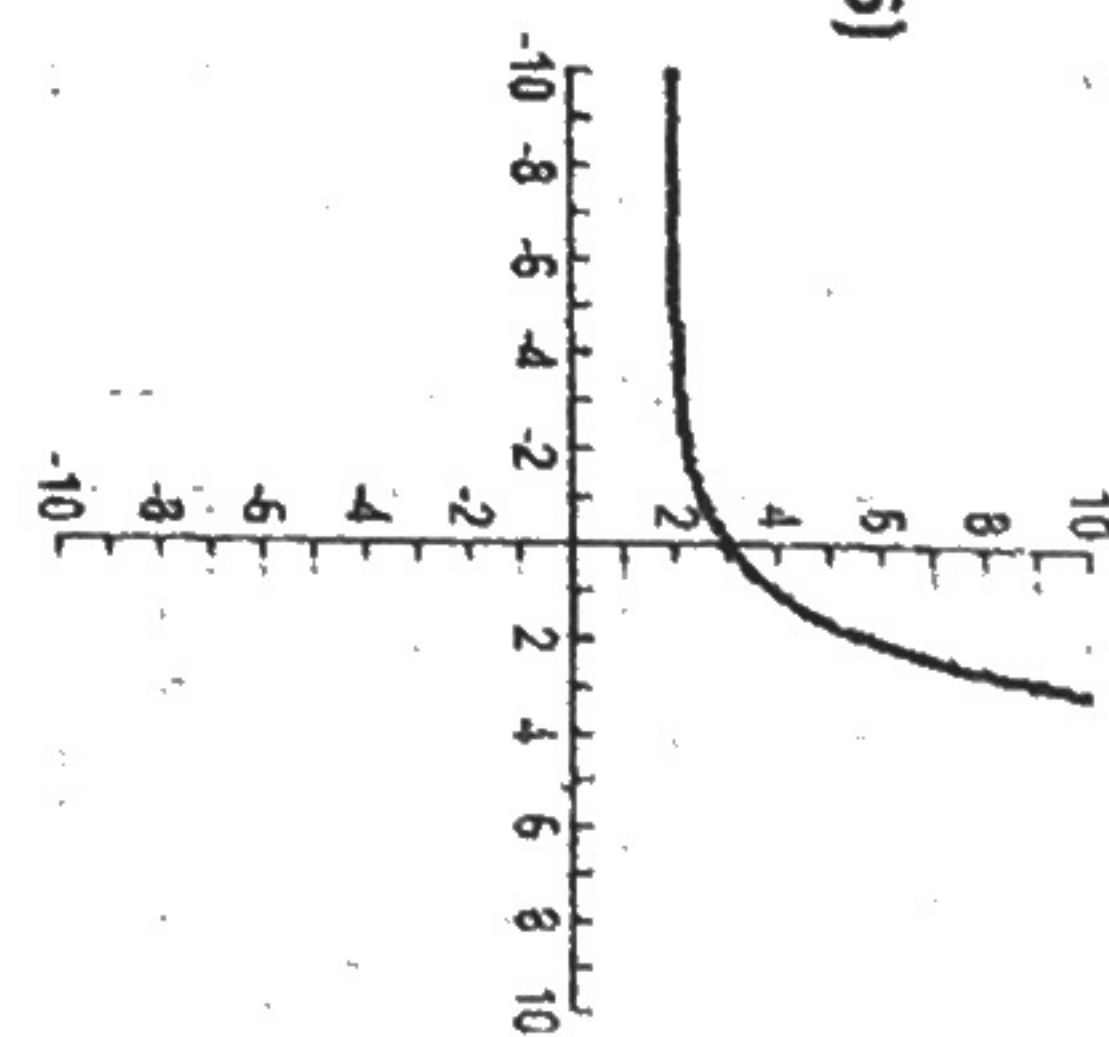
- a. Domain/Range
- b. Increasing or Decreasing Intervals
- c. Max/Min/None and where?
- d. X and Y Intercepts
- e. End Behavior on L and R



24) a. D: all real
 R: $y \leq 3$
 b. Inc: $x < -5$
 Dec: $x > -5$
 c. max at $(-5, 3)$
 d. x-int: $-8, -2$ y-int: -2
 e. falls on left
falls on right



25) a. D: all real
 R: all real
 b. Inc: ✓
 Dec: for all y-values



26) a. D: all real
 R: app. 2 or $y \geq 2$
 b. Inc: for all y-values
 Dec: ✓
 c. min at app. 2
 d. x-int: none y-int: 3
 e. app. 2 on left or ✓
rises on right

Remember: Study Guides are not the "end-all, be-all" to use for your test study material. Please look over your old homework, class notes, and your "flip book."