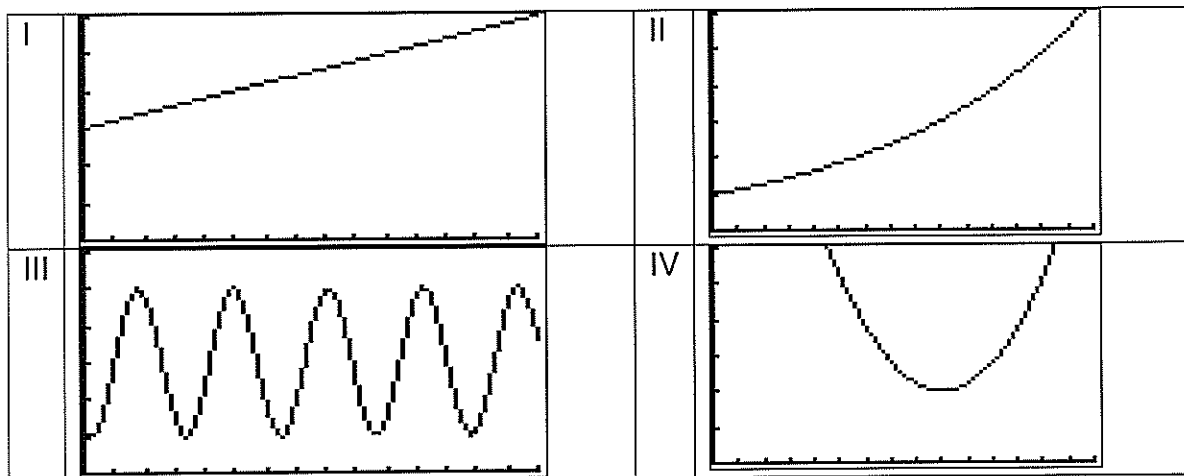


PART A Short Answer

1. Identify the following types of functions, giving the range and domain of each. Assume that the function extends to infinity and the given scale is 1 to 1. Also give one real-world example of each type of function. Your example does not need to fit the data – only the general type of function.



	Function Type or Name	Domain	Range	Example
I				
II				
III				
IV				

2. Calculate first and second differences and identify the type of function

x	y		
1	-5		
2	-4		
3	-1		
4	4		
5	11		

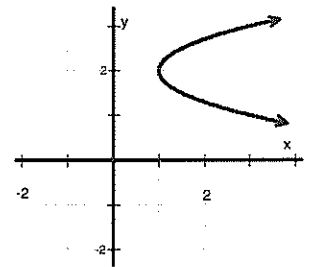
3. Write $\frac{a^2 \times a^5}{a^4}$ as a single power.

4. Identify each of the following as a function or non-function.

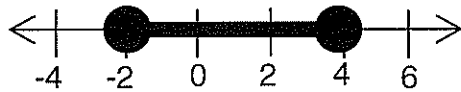
a)

x	y
-1	0
0	1
1	1
2	2
3	2

b)



5. Give the following domain in set notation.



6. Given $f(x) = -2x + 1$, find $f(1) - 3f(-2)$

7. Factor fully $2x^2 - 2x - 24$.

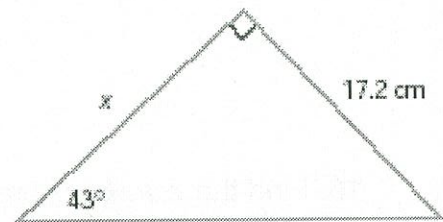
8. State the zeros of $g(x) = -x(x+5)$



9. State the range of $y = -x^2 + 2$

10. Find 14% of \$325.

11. Find Θ to the nearest degree if $\sin(\Theta) = 0.25$

12. Solve for x in the triangle.

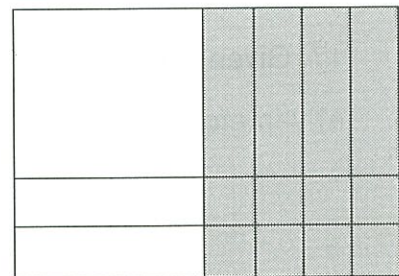


13. The algebra tiles area model represents a quadratic where  is positive and  is negative.

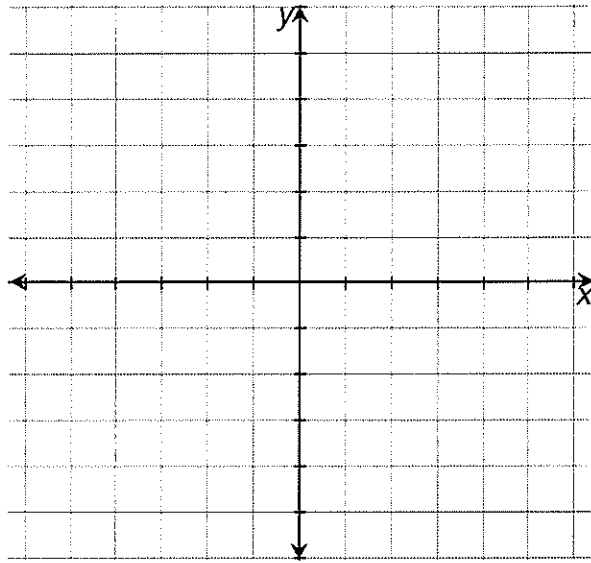
Write the equation of the quadratic in;

a) standard form

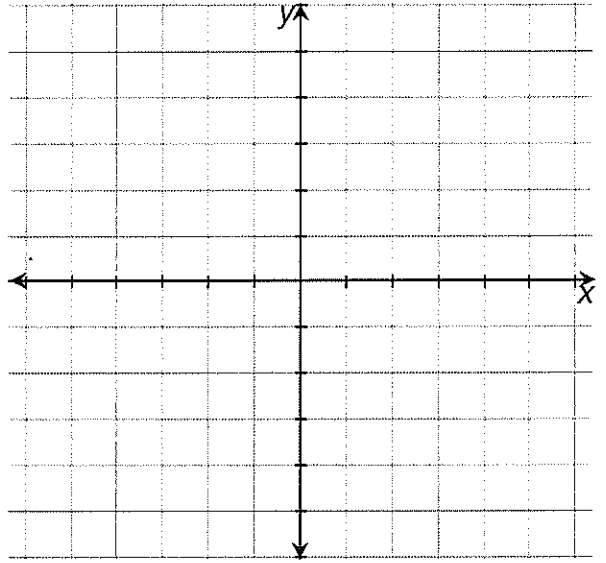
b) factored form.



14. Sketch the graph of $y = (x-3)^2 - 1$.



15. Sketch the graph of $y = 3^x$.



16. Find the *number* of real roots of $g(x) = -4x^2 + 5x - 3$

PART B Long Answer

17. Given $h(x) = x^2 + 5x - 24$, find the

a) y-intercept

b) zeros

c) vertex

18. Find the equation of the quadratic functions that has zeros of -1 and 5 and passes through the point $(-3, -32)$.

19. The following table shows the depth of glacier ice over time. If this trend continues,

a) Find the depth at 7 years.

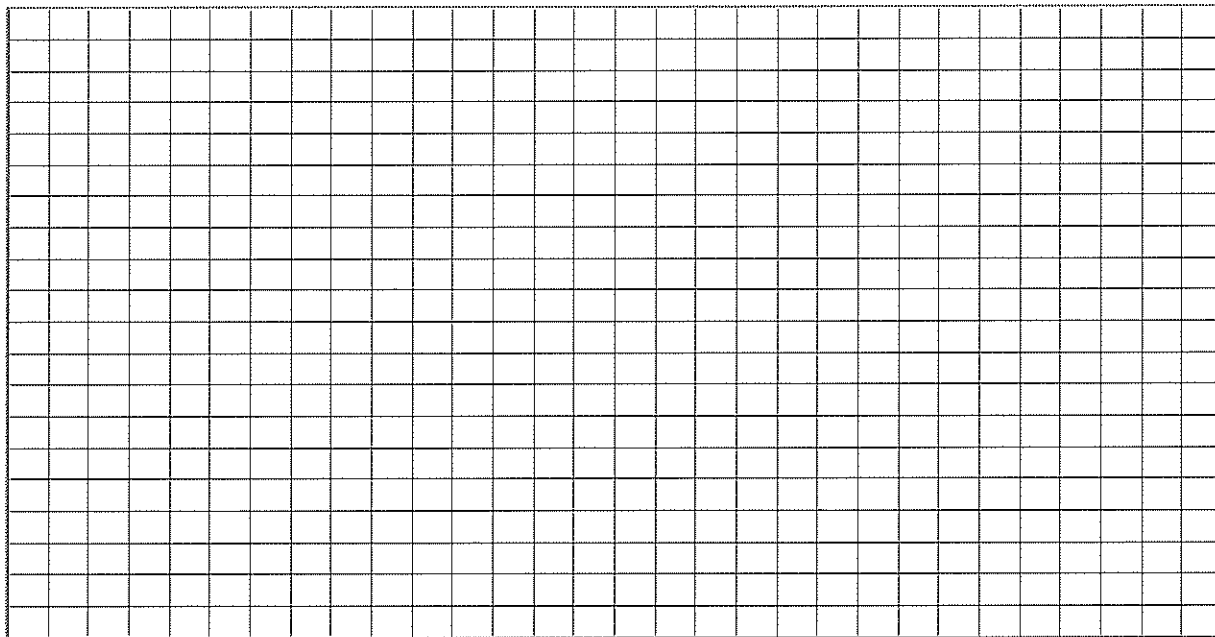
Time(years)	Depth(m)
0	95
1	76
2	61
3	49
4	40
5	31
6	25
7	

b) Find the equation of the function.

20. The following chart shows the number of daylight hours on the 21st day of each month for a one year cycle.

Month	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Hours	12.2	13.7	14.9	15.4	14.9	13.7	12.2	10.8	9.5	9.0	9.5	10.8

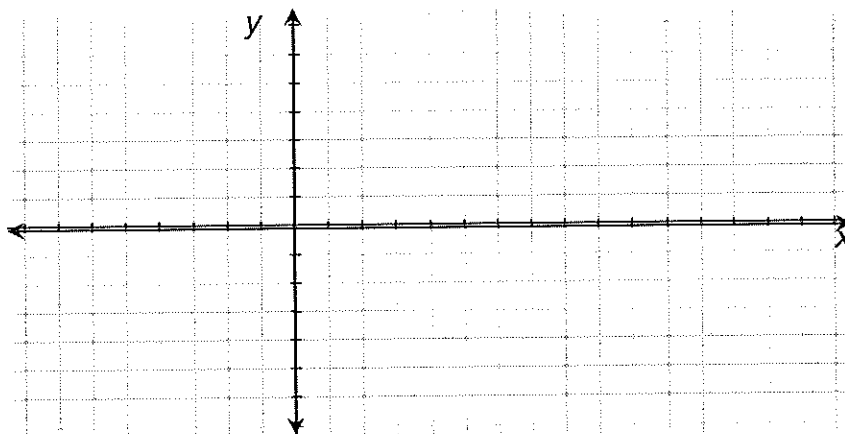
a) Plot the points and draw the line of best fit.



b) Find an equation to model the data.

21. Given triangle ABC, where $b = 15$, $c = 12$ and angle $A = 28^\circ$, find side length a .

22. Sketch $y = 3\sin(x) + 1$ for one cycle.



23. Mr Bawa has to account options to deposit his \$10000 to try to make some money. Option A is 6%/a compounded annually and Option B is 6%/a compounded monthly. Which is the better option for him.

24. A bacteria culture doubles every 5 hours.

a) Write the equation of the growth function if there are 500 bacteria to start.

b) How many bacteria will there be after 20 hours?

c) When will there be one million bacteria?