KENDRIYA VIDYALAYA GACHIBOWLI, GPRA CAMPUS HYD – 32
REVISION TEST – 01 FOR BOARD EXAM 2021

Max. marks: 40   **Time Allowed: 1½ hr**

SECTION – A (1 MARK EACH)
1. If a and b are two positive integers such that a = 14b. Find the HCF of a and b.
2. If zeroes of $p(x) = 2x^2 – 7x + k$ are reciprocal of each other, then find the value of k.
3. Find the value of k so that the following system of equations has no solution: $3x – y – 5 = 0$, $6x – 2y + k = 0$
4. For which values of p, does the pair of equations given below has unique solution? $4x + py + 8 = 0$ and $2x + 2y + 2 = 0$
5. The HCF of two numbers is 145 and their LCM is 2175. If one number is 725, then find the other number.
6. For what value of k, are the roots of the quadratic equation $3x2 + 2kx + 27 = 0$ real and equal.

SECTION – B (2 MARKS EACH)
7. 4 Bells toll together at 9.00 am. They toll after 7, 8, 11 and 12 seconds respectively. How many times will they toll together again in the next 3 hours?
8. Solve for x and y: $2x + 3y = 7$; $4x + 3y = 11$

SECTION – C (3 MARKS EACH)
9. Prove that $\sqrt{3}$ is irrational.
10. Solve for x: $\dfrac{1}{a+b+x} = \dfrac{1}{a} + \dfrac{1}{b} + \dfrac{1}{x}; a \neq 0, b \neq 0, x \neq 0$
11. On a morning walk three persons step off together and their steps measure 40 cm, 42 cm, 45cm, what is the minimum distance each should walk so that each can cover the same distance incomplete steps?
12. If α and β, are zeroes of polynomial $p(x) = 5x^2 + 5x + 1$ then find the value of (i) $α^2 + β^2$ (ii) $α^{-1}$ and $β^{-1}$

SECTION – D (5 MARKS EACH)
13. Solve the following system of linear equations graphically: $3x + y – 12 = 0$; $x – 3y + 6 = 0$ Shade the region bounded by the lines and x-axis. Also, find the area of shaded region.
14. A motor boat whose speed is 18 km/h in still water takes 1 hr. more to go 24 km upstream than to return downstream to the same spot. Find the speed of stream.

CASE STUDY-BASED QUESTIONS (Each sub-question carries 1 mark)
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15. A test consists of 'True' or 'False' questions. One mark is awarded for every correct answer while ¼ mark is deducted for every wrong answer. A student knew answers to some of the questions. Rest of the questions he attempted by guessing. He answered 120 questions and got 90 marks.
    (i)   If answer to all questions he attempted by guessing were wrong, then how many questions did he answer correctly?
    (ii) How many questions did he guess?
    (iii) If answer to all questions he attempted by guessing were wrong and answered 80 correctly, then how many marks he got?
    (iv) If answer to all questions he attempted by guessing were wrong then how many questions answered correctly to score 95 marks?

16. The below quadratic function can model the natural shape of a banana. Now, we know that a parabolic shape must have a quadratic function, therefore an equation in standard form of $f(x)=ax^2 + bx + c$. To find an equation for the parabolic shape of the banana, we need to find the values of a, b, and c. From the banana picture above, we can see that a quadratic function is able to model the banana quite accurately, with a=0.1, b=0, and c=0. Therefore, the equation is $f(x)=0.1x^2$.
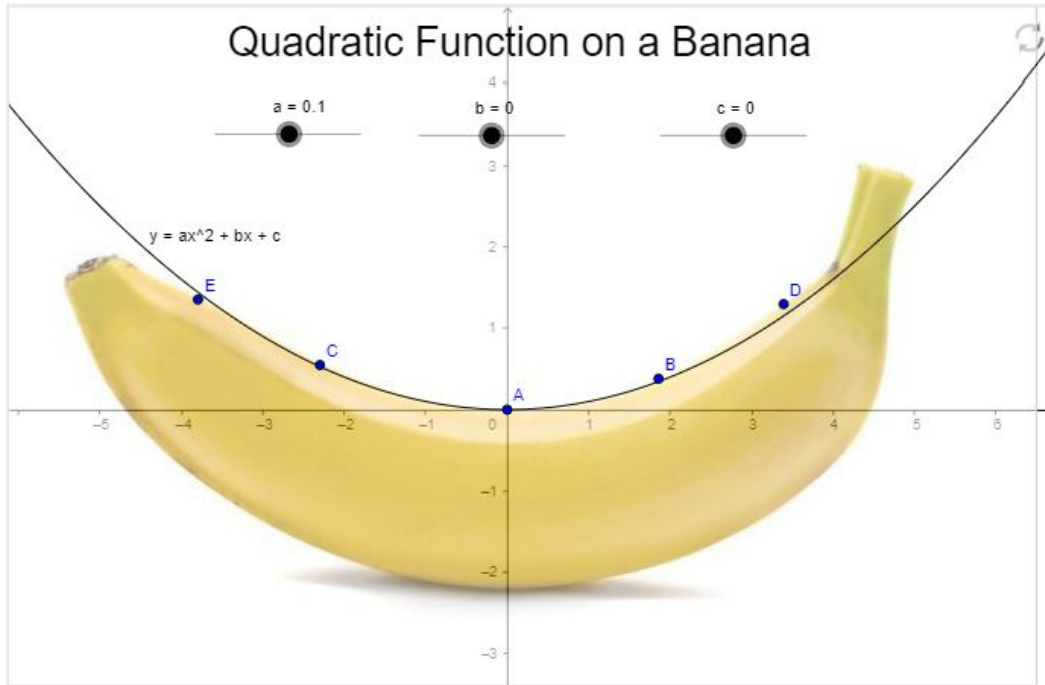
(i) Name the shape of the banana curve from the above figure.
(ii) Find the number of the zeroes of the polynomial for the shape of the banana.
(iii)If the curve of banana represented by $f(x) = x^2 - x - 12$. Find its zeroes.
(iv)If the representation of banana curves whose one zero is 4 and the sum of the zeroes is 0 then find the quadratic polynomial.

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