Aptitude Assignment 3

1. Write two quadratic equations such that the sum of roots equals twice the product of roots? ans: $2x^2 - 3x - 2 = 0$
   $3x^2 + 2x - 1 = 0$
2. 2x+3y=12 has (2,3) as its solution or not? ans : not
3. Find possible coordinates of (x,y) such that point (1,1), (2,2) & (x,y) are collinear?
   ↳ ans: any pt. in form of (n,n)
4. Find out all possible values of a & b for which the ratio of a^3+b^3 to a^3-b^3 is 1:1 a,b are real numbers. → ans: a = 2, b = 1 or b = 3
5. The triangle area formed by the lines y=x, y-axis and y=3 line will be?
   ↳ area = 4.5 sq. unit

Q.2. Sol)

$ax^2+bx+c=0$

sum of roots $= -b/a$

product $= c/a$

A/C, $\quad -b/a = 2\,c/a$

$\therefore \quad 2x^2 - 3x - 2 = 0$

$$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$$

$x = 2, -1/2$

another equation,

$3x^2 + 2x - 1 = 0$

$x = -1, 1/3$

$\therefore$ Two equations are

$2x^2 - 3x - 2 = 0$ — (1)

$3x^2 + 2x - 1 = 0$ — (2)

Q.3 Sol) if lines are collinear then, slope of them are same

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2-1}{2-1} = 1.$$

So, (1,1), (2,2) Possible collinear co-ordinates are

(1,1)

(2,2)

(3,3)

(4,4)

=

=

ans: any pt. of form (n,n), where n is real number will be collinear with (1,1) & (2,2)

Q.4) sol)

$$\frac{a^3+b^3}{a^3-b^3} = \frac{1}{1}$$

multiply both side by a^3-b^3

$$a^6 - b^6 = a^3 - b^3$$

$$a^2 + ab + b^2 = a + b$$

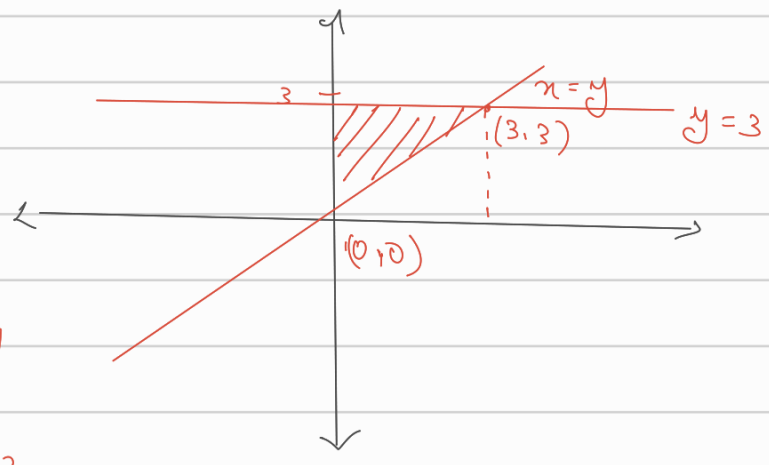
∴ soln is can be

$a = 2$, $b = 1$ or $b = 3$ → Ans

Q.5 sol)

$y = x$

$y = 3$



$$\text{Area} = \frac{1}{2} \times l \times h$$

$$= \frac{1}{2} \times 3 \times 3$$

Area = 4.5 sq. unit