Assignment 3

Q1 $\alpha + \beta = 2\alpha\beta$

$ax^2 + bx + c = 0$

Sum of roots $= -\dfrac{b}{a}$

Product of roots $= \dfrac{c}{a}$

$-\dfrac{b}{a} = \dfrac{2c}{a}$

$b = -2c$

$$\boxed{\begin{array}{l} x^2 - 2x + 1 = 0 \\ x^2 - 4x + 2 = 0. \end{array}}$$
Ans

Q2 $2x + 3y = 12$

$(2, 3)$

$2 \times 2 + 3 \times 3 = 12$

$4 + 9 = 12$

$\boxed{13 \neq 12}$

$\boxed{\text{So, } (2, 3) \text{ is not a solution}}$
Ans

Q3 $\boxed{(3, 3)}$ Ans
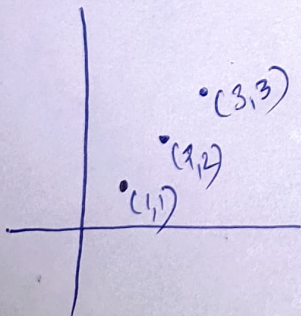
Q4 $\dfrac{a^3 + b^3}{a^3 - b^3} = \dfrac{1}{1}$ —①

Cross - Multiply

$a^3 + b^3 = a^3 - b^3$

Add b^3 to both side

$a^3 + b^3 + b^3 = a^3 - b^3 + b^3$

$a^3 + 2b^3 = a^3$

$2b^3 = 0$
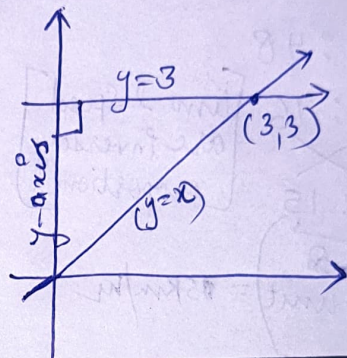
$\boxed{b = 0}$

Substitute $b = 0$ in eqⁿ ①

$\dfrac{a^3 + 0}{a^3 - 0} = \dfrac{1}{1}$

$\dfrac{a^3}{a^3} = \dfrac{1}{1}$

$\boxed{\begin{array}{l} a \text{ can have any real number} \\ \text{except } 0, \text{ and } b \text{ can have} \\ \text{only value } 0. \end{array}}$
Ans

Q5

$\boxed{\text{Right Angled Triangle}}$
Ans