

IX Revision (LINEAR EQUATIONS IN TWO VARIABLES - answers)

1) $y = 2x$
when $x = \frac{3}{2}$, $y = 2 \times \frac{3}{2} = 3$

$(\frac{3}{2}, 3)$ (d)

2) natural numbers (a)

$$2x + 5y = 7$$

when $x = 1$, $2 \times 1 + 5y = 7$

$$5y = 7 - 2 = 5$$

$$y = \frac{5}{5} = 1$$

Hence $(1, 1)$ is the required solution.

3) $2x + 5y = 20$

when $x = \frac{5}{2}$, $2 \times \frac{5}{2} + 5y = 20$

$$5y = 20 - 5 = 15$$

$$y = \frac{15}{5} = 3$$

$(\frac{5}{2}, 3)$ (d)

4) $y = 0$ (b)

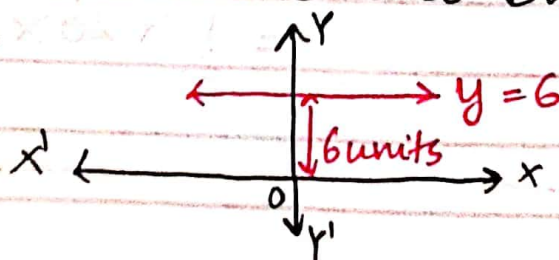
5) $2x + 0y = 9$

$$2x = 9$$

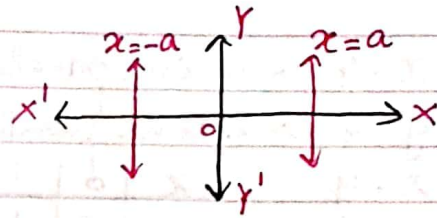
$$x = \frac{9}{2}$$

$(\frac{9}{2}, 0)$ (b)

6) parallel to x -axis at a distance 6 units from the origin



7) y-axis (b)



8) $y = 4x - 3$

When $x = 0$, $y = -3$

Hence, the given line does not pass through the origin

False

9) $y = x$

When $x = a$, $y = a$

(a, a) (a)

10) $2x + 3y = k$

When $x = 3$, $y = 0$; $2 \times 3 + 3 \times 0 = k$

$\therefore k = 6$ (a)

11) $3x + 5y = 15$

When a line cuts x-axis, $y = 0$

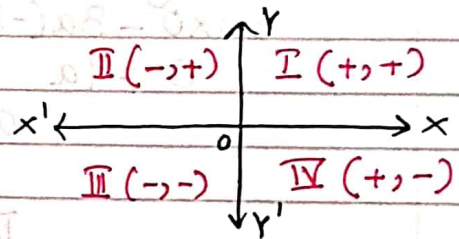
$\Rightarrow 3x + 0 = 15$

$\Rightarrow 3x = 15$

$\therefore x = \frac{15}{3} = 5$

$(5, 0)$ (a)

12) Second quadrant (b)



13) remains the same (b)

14) infinitely many (c)

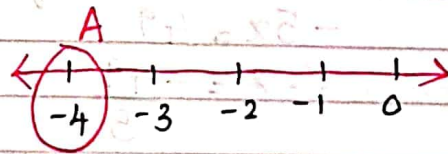
15) $3x + 12 = 0$

(i) in one variable

$3x = -12$

$x = \frac{-12}{3}$

$\therefore x = -4$



Thus A represents $x = -4$ on the number line.

(ii) $3x + 12 = 0$

$\Rightarrow 3x + 0y + 12 = 0$ is the required linear equation in two variables.

16) $x=4$ is a line parallel to y -axis.
 $y=2$ is a line parallel to x -axis.
 $x=y$

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

Thus, the given lines form a triangle with vertices $A(4,4)$, $B(4,2)$ and $C(2,2)$.

17) $5bx - 3ay = 30$
 when the given line passes through $(-1,0)$,
 $5bx(-1) - 3a \times 0 = 30$
 $-5b - 0 = 30$
 $-5b = 30$
 $b = -\frac{30}{5} = -6$
 $\therefore \boxed{b = -6}$

when the given line passes through $(0, -3)$
 $5b \times 0 - 3a(-3) = 30$
 $0 + 9a = 30$
 $a = \frac{30}{9} = \frac{10}{3}$
 $\therefore \boxed{a = \frac{10}{3}}$

18) given, ordinate is equal to abscissa
 $\Rightarrow y = x \rightarrow (1)$
 $2x - 7y = 49$
 $2x - 7x = 49$ [from eq: (1)]
 $-5x = 49$
 $\therefore x = -\frac{49}{5}$
 Thus, $y = -\frac{49}{5}$

Hence, the required point is $(-\frac{49}{5}, -\frac{49}{5})$

19) speed of car = 60 km/hr
distance = speed \times time.

$$y = 60x$$

$\Rightarrow 60x - y + 0 = 0$ is the required linear equation in two variables of the form $ax + by + c = 0$.

20) Dividend = Divisor \times quotient + remainder.
Let y be the dividend and x be the divisor.

$$\text{Then, } y = 9x + 1$$

$\Rightarrow 9x - y + 1 = 0$ is the required linear equation in two variables of the form $ax + by + c = 0$.

21) Let digit in the ten's place be x
and one's place be y .

Then, the original number = $10x + y$
reversed number = $10y + x$

$$\text{Thus, } 10x + y + 10y + x = 88$$

$$11x + 11y = 88$$

$$\left(\div 11\right), x + y = 8$$

$\Rightarrow x + y - 8 = 0$ is the required linear equation in two variables of the form $ax + by + c = 0$.

$$22) (p+1)x - (2p+3)y - 1 = 0$$

$$\text{When } x=2, y=3; (p+1) \times 2 - (2p+3) \times 3 - 1 = 0$$

$$\Rightarrow 2p + 2 - 6p - 9 - 1 = 0$$

$$\Rightarrow -4p - 8 = 0$$

$$\Rightarrow -4p = 8$$

$$\therefore p = \frac{-8}{4} = -2 //$$

$$(i) \text{ The given equation is } (-2+1)x - (2 \times (-2) + 3)y - 1 = 0$$

$$\Rightarrow -x + y - 1 = 0$$

$$\Rightarrow x - y + 1 = 0$$

(ii) There are infinitely many solutions for a linear equations in two variables.

(iii) When $x = -2$ and $y = 3$, $-2 - 3 + 1 = -5 + 1 = -4 \neq 0$
Hence the given line does not pass through the point $(-2, 3)$

23) no. of girls = x

no. of boys = y

ATQ, $x = y + 10$

$\Rightarrow x - y - 10 = 0$ is the required linear equation in two variables of the form $ax + by + c = 0$.

24) $x = 6, y = -2$

$x + y = 4$

$x = -6, y = 10$

$x + y = 4$

Hence $x + y - 4 = 0$ is the linear equation

25) Fixed monthly expense = ₹ 500

Rate of milk consumption = ₹ 20 per kg.

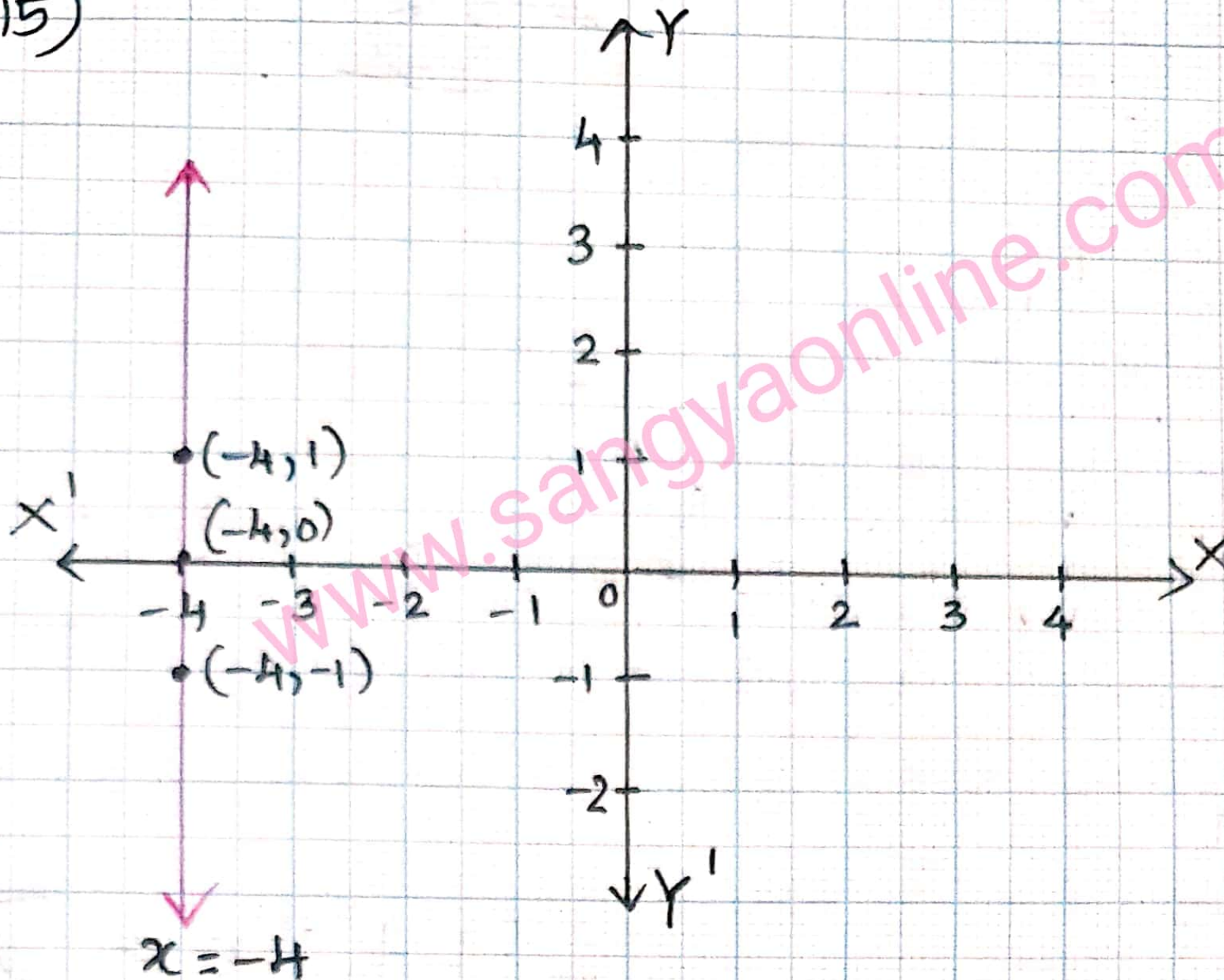
ATQ, $y = 500 + 20x$

$\Rightarrow 20x - y + 500 = 0$ is the required linear equation in two variables of the form $ax + by + c = 0$.

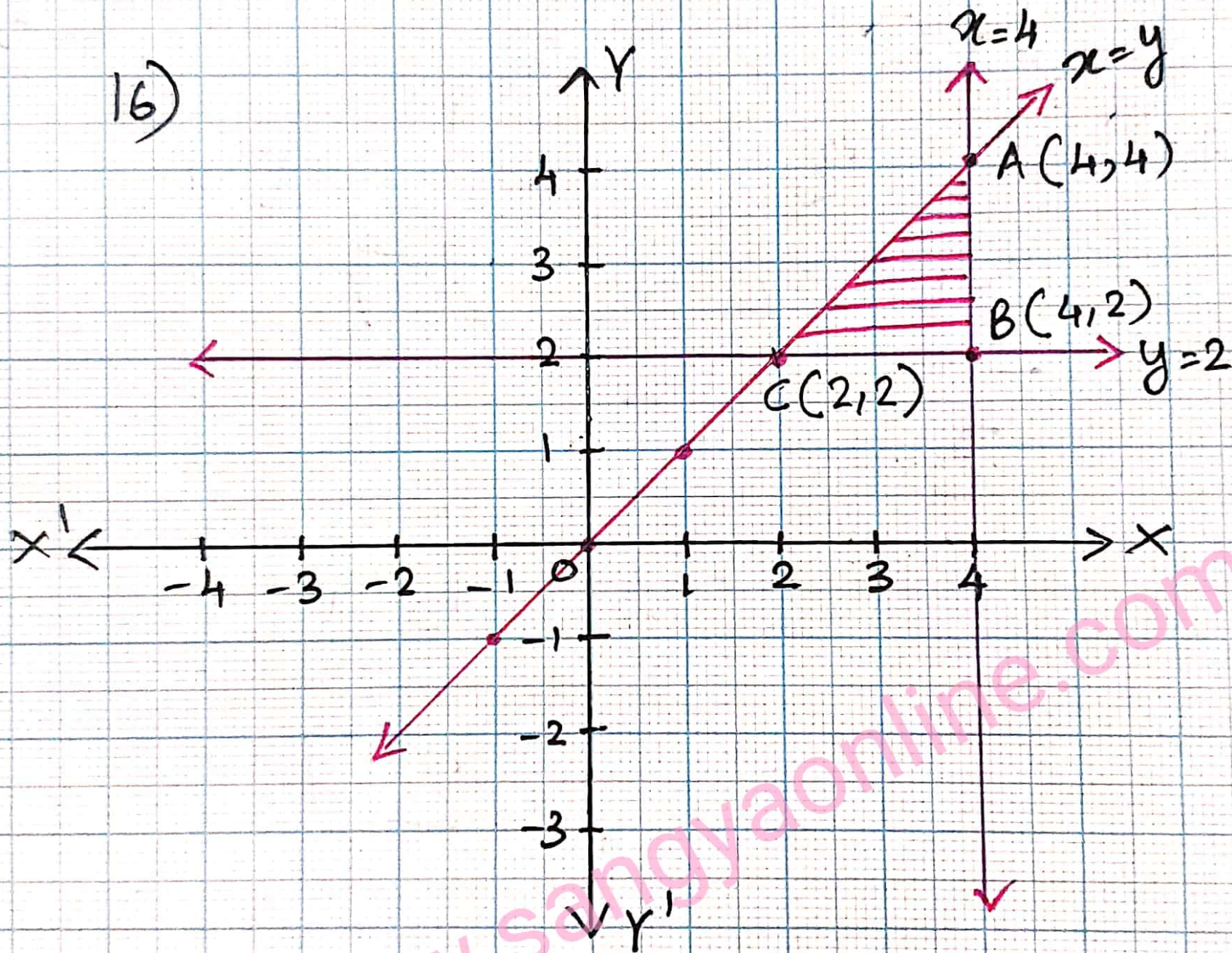
For graph :- $y = 500 + 20x$

x	0	1	-1
y	500	520	480

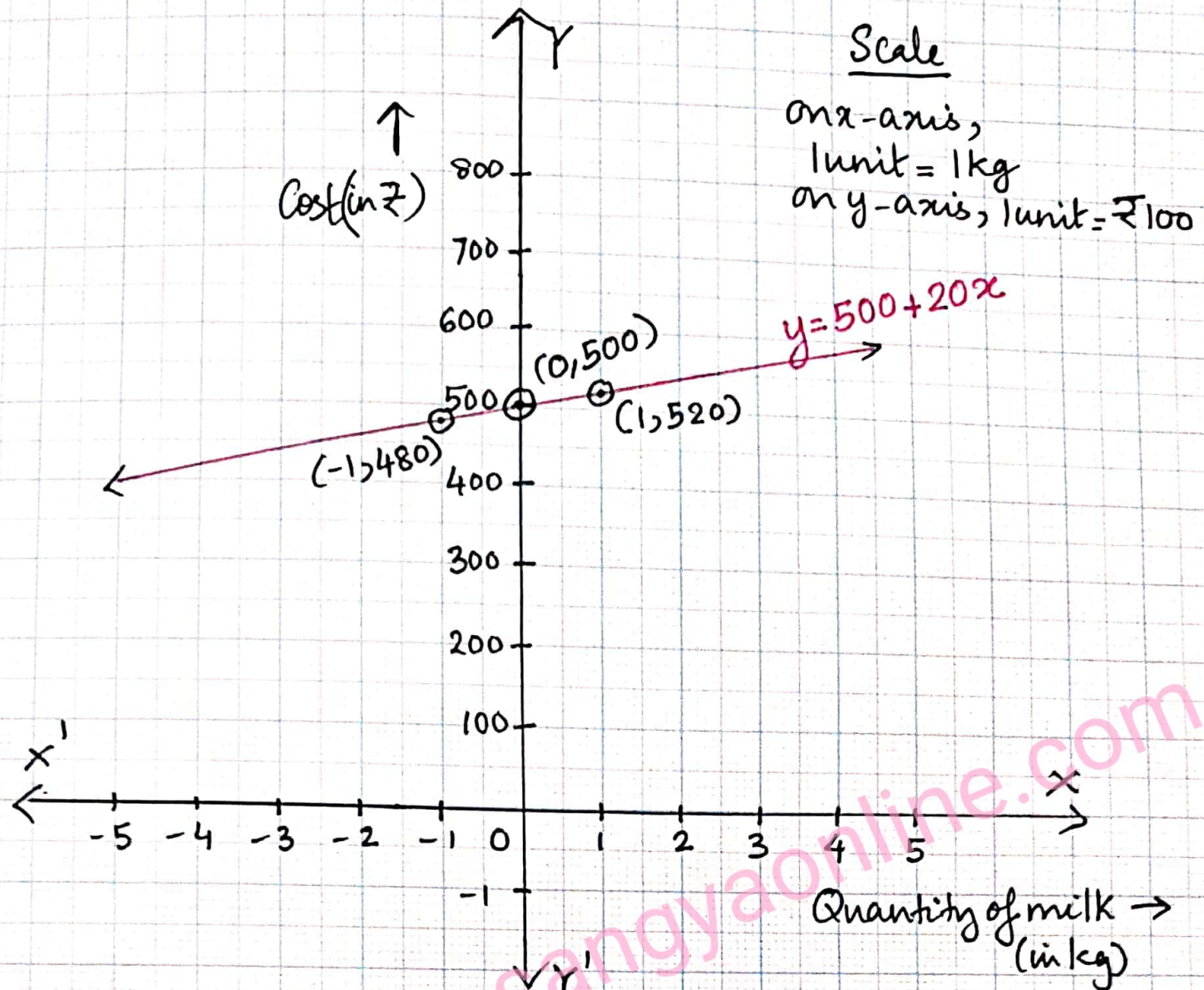
15)



16)



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