Date **IX H.W-7 (MCQs)**

1) The line represented by the equation $8x+3y=24$ cuts the coordinate axes at A and B. The area of ΔAOB is
(a) 24 sq.units (b) 12 sq.units (c) 48 sq.units (d) 16 sq.units

2) The image of a point P under reflection in the x-axis has the coordinates $(7,-3)$. The coordinates of P are
(a) $(7,3)$ (b) $(-7,3)$ (c) $(-7,-3)$ (d) $(-3,7)$

3) The reflection of $P(-4,5)$ in y-axis has the coordinates
(a) $(-4,-5)$ (b) $(4,5)$ (c) $(4,-5)$ (d) $(5,-4)$

4) If points P and Q have coordinates $(-2,7)$ and $(-5,9)$ respectively, then the value of (abscissa of P) − (abscissa of Q) is
(a) 3 (b) −3 (c) −2 (d) 2

5) If the point $P(x,y)$ lies in the fourth quadrant, then
(a) $x>y$ (b) $x<y$ (c) $x>-y$ (d) $y>-x$

6) The perpendicular distance of $(3,-4)$ from x-axis is
(a) 3 units (b) −4 units (c) 4 units (d) 7 units

7) The perpendicular distance of $(-7,4)$ from y-axis is
(a) 7 units (b) 4 units (c) 11 units (d) −7 units

8) The area of Δ the coordinates of whose vertices are $O(0,0)$, $A(6,0)$ and $B(0,8)$ is
(a) 48 sq.units (b) 24 sq.units (c) 14 sq.units (d) 12 sq.units

9) If $x=1, y=6$ is a solution of the eq: $8x-ay+a^2=0$, then $a=$
(a) $-2,-4$ (b) $2,4$ (c) $-2,4$ (d) $2,-4$

10) The graph of linear eq: $4x-3y-12=0$ cuts x-axis at point
(a) $(3,0)$ (b) $(-3,0)$ (c) $(4,0)$ (d) $(-4,0)$

11) If $x=k+1$, $y=2k-1$ is a solution of $3x-2y+7=0$, then $k=$
(a) 10 (b) 6 (c) 4 (d) 12

12) The point on the graph $2x+5y=19$, whose ordinate is $1\frac{1}{2}$ times its abscissa is (a) $(2,3)$ (b) $(3,2)$ (c) $(-2,-3)$ (d) $(-3,-2)$

13) The equation $x=7$ in two variables x and y can be written as
(a) $1x+1y=7$ (b) $1x+0y=7$ (c) $0x+1y=7$ (d) $0x+0y=7$

14) If x^2-1 is a factor of $ax^4+bx^3+cx^2+dx+e$, then
(a) $a+c+e=b+d$ (b) $a+b+e=c+d$ (c) $a+b+c=d+e$ (d) $b+c+d=a+e$

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15) If both $x-2$ and $x-\frac{1}{2}$ are factors of px^2+5x+r, then

(a) $p=r$ (b) $p+r=0$ (c) $2p+r=0$ (d) $p+2r=0$

16) Let $f(x)$ be a polynomial such that $f(-\frac{1}{2})=0$, then a factor of $f(x)$ is (a) $2x-1$ (b) $2x+1$ (c) $x-1$ (d) $x+1$

17) If $x+2$ and $x-1$ are the factors of x^3+10x^2+mx+n, then the values of m and n are respectively

(a) 5 and -3 (b) 17 and -8 (c) 7 and -18 (d) 23 and -19

18) The value of k for which $(x-1)$ is a factor of $4x^3+3x^2-4x+k$ is (a) 3 (b) 1 (c) -2 (d) -3

19) If $a+b+c=0$, then $\frac{a^2}{bc}+\frac{b^2}{ca}+\frac{c^2}{ab}=$

(a) 1 (b) 0 (c) -1 (d) 3

20) $$\frac{(a^2-b^2)^3+(b^2-c^2)^3+(c^2-a^2)^3}{(a-b)^3+(b-c)^3+(c-a)^3}=$$

(a) $3(a+b)(b+c)(c+a)$ (b) $3(a-b)(b-c)(c-a)$

(c) $(a-b)(b-c)(c-a)$ (d) $(a+b)(b+c)(c+a)$

IX H.W-7

1) When the line cuts the x-axis, $y=0$

Then, $8x=24$

$x=3$

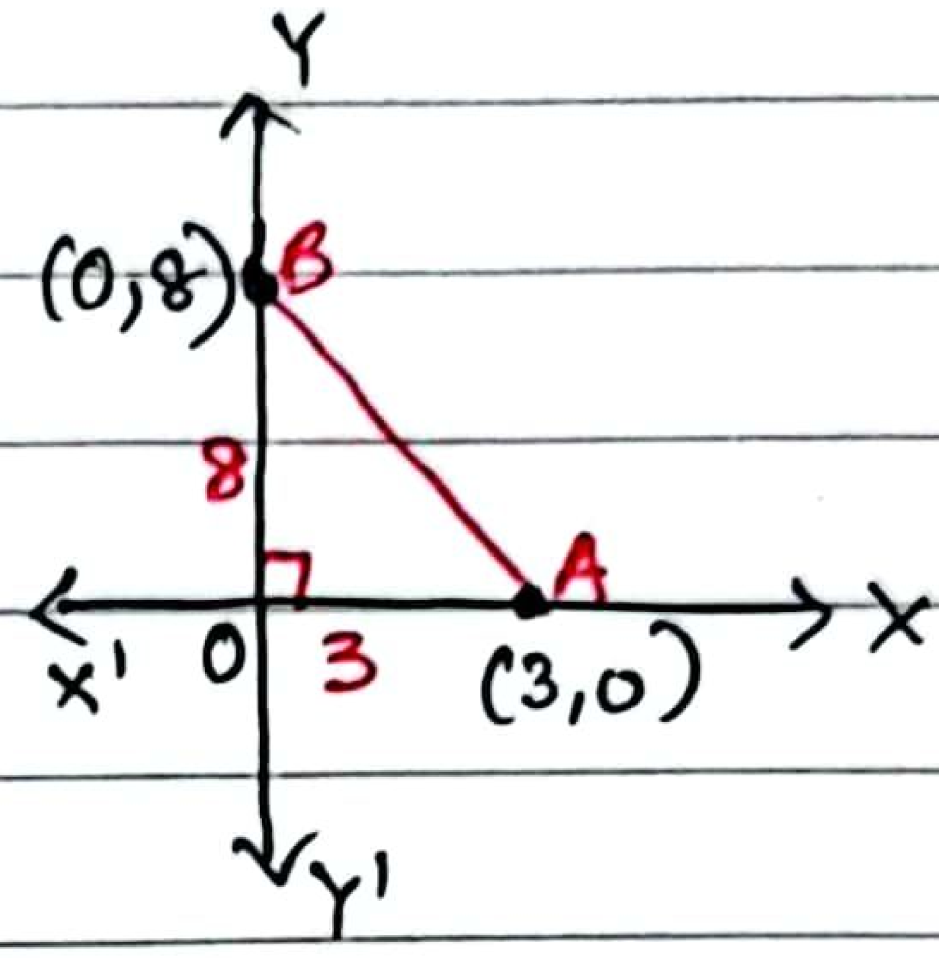
$\therefore$ the line cuts the x-axis at $(3,0)$

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

Then, $3y=24$

$y=8$

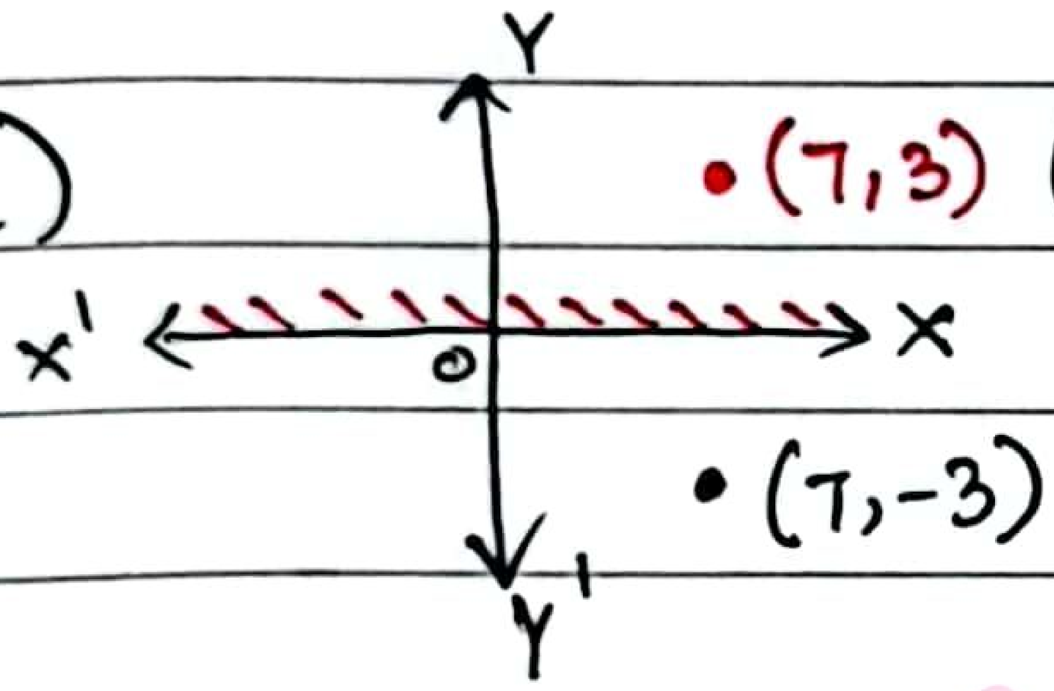
$\therefore$ The line cuts the x-axis at $(0,8)$



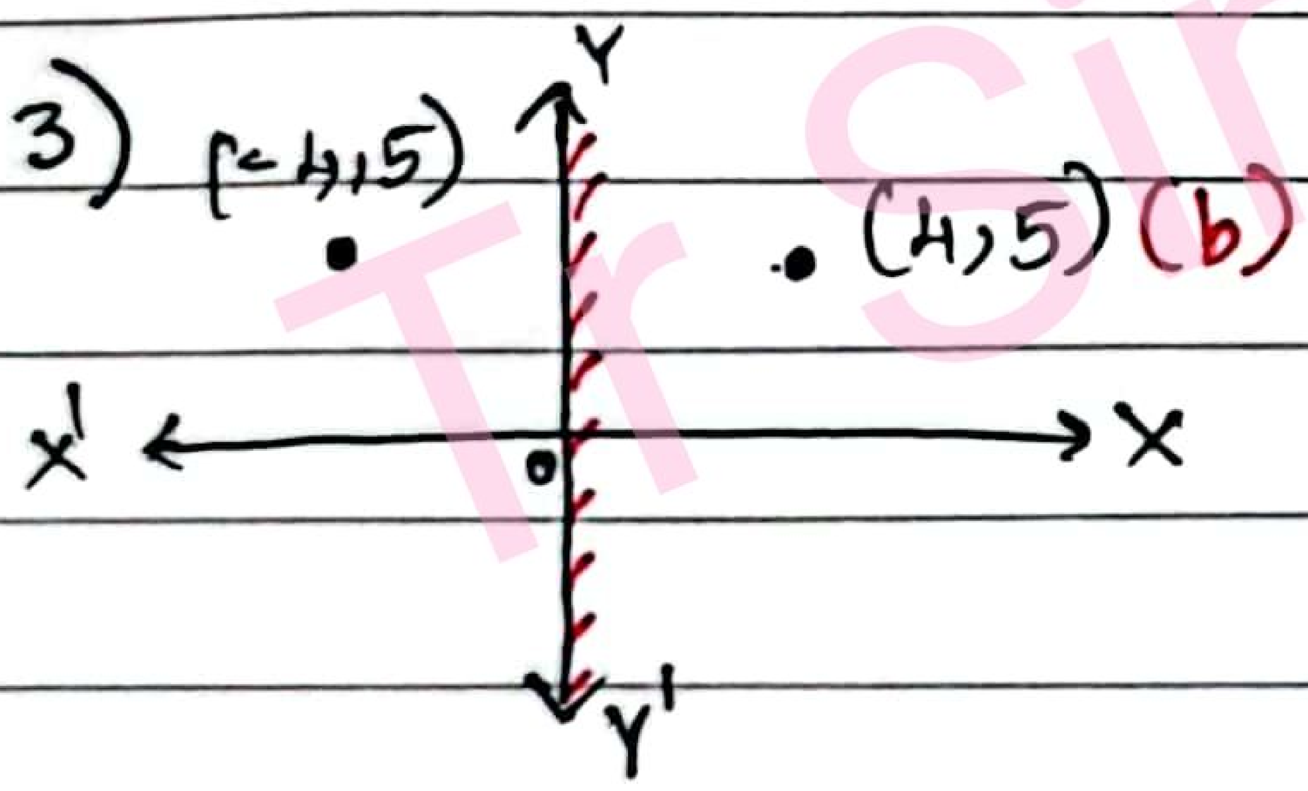
Thus, area$(\triangle AOB) = \frac{1}{2} \times OA \times OB$

$= \frac{1}{\cancel{2}_1} \times 3 \times \cancel{8}^4 = 12$ sq. units (b)

2)



3)



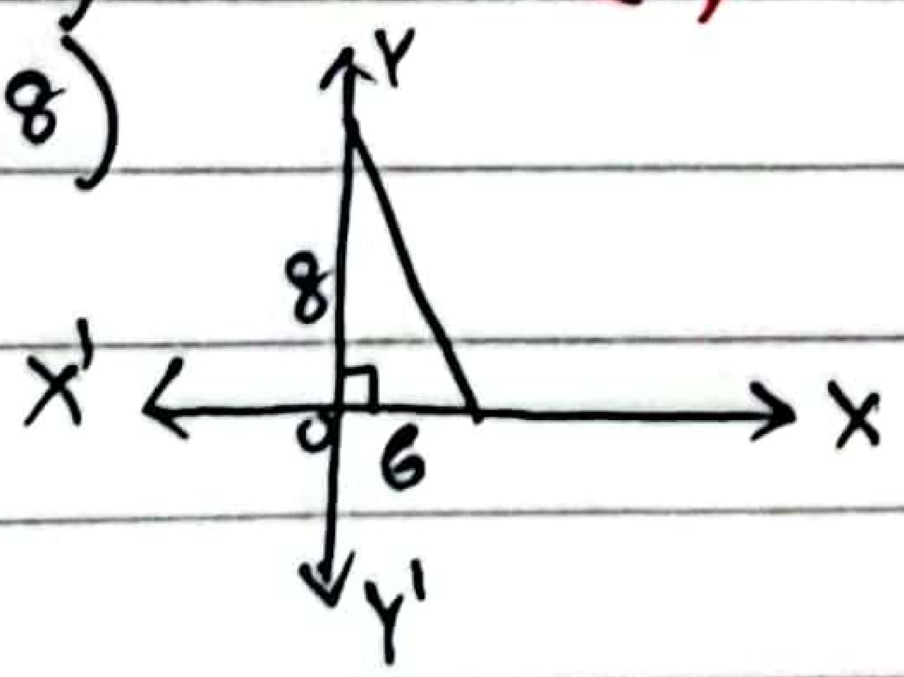
4) $-2-(-5) = -2+5 = 3$ (a)

5) $x>y$ (a)

6) 4 units (c)

7) 7 units (a)

8)



area$(\triangle) = \frac{1}{\cancel{2}_1} \times \cancel{6}^3 \times 8 = 24$ sq. units (b)

9) $8 - 6a + a^2 = 0$

$\Rightarrow a^2 - 6a + 8 = 0$

S	P	
-6	$8 <$	-4, -2

$\Rightarrow (a-4)(a-2) = 0$

$\therefore a = 4, 2$ (b)

10) $y = 0$, $4x - 12 = 0$

$4x = 12$

$x = 3$

$\therefore$ The point is $(3,0)$ (a)

11) $3(k+1)-2(2k-1)+7=0$

$\Rightarrow 3k+3-4k+2+7=0$

$\Rightarrow -k+12=0$

$\Rightarrow -k=-12$

$k=12$ (d)

12) $y=\frac{3x}{2}$

$2x+5y=19$

$\Rightarrow 2x+5\times\frac{3x}{2}=19$

$\Rightarrow 2x+\frac{15x}{2}=19$

$\Rightarrow \frac{4x+15x}{2}=19$

$\Rightarrow \frac{\cancel{19}^{1}x}{2}=\cancel{19}^{1}$

$x=2$ //

$y=\frac{3}{\cancel{2}_{1}}\times\cancel{2}^{1}$

$y=3$ //

$\therefore$ The point is $(2,3)$ (a)

13) $1x+0y=7$ (b)

14) $x^2-1=(x+1)(x-1)$

Let $p(x)=ax^4+bx^3+cx^2+dx+e$

Since $(x+1)$ is a factor of $p(x)$,

$p(-1)=0$

$\Rightarrow a-b+c-d+e=0$

$\Rightarrow a+c+e=b+d$ (a)

15) Let $p(x)=px^2+5x+r$

Since $(x-2)$ is a factor of $p(x)$,

$p(2)=0$

$\Rightarrow 4p+10+r=0$

$\Rightarrow 4p+r=-10 \rightarrow (1)$

Since $(x-\frac{1}{2})$ is a factor of $p(x)$,

$p(\frac{1}{2})=0$

$\Rightarrow \frac{p}{4}+\frac{5^{\times 2}}{2\times 2}+\frac{r^{\times 4}}{1\times 4}=0$

$\Rightarrow \frac{p+10+4r}{4}=0$

$\Rightarrow p+10+4r=0$

$\Rightarrow p+4r=-10 \rightarrow (2)$

From eq:s (1) and (2),

$4p+r=p+4r$

$\Rightarrow 4p-p=4r-r$

$\Rightarrow \cancel{3}p=\cancel{3}r$

$p=r$ (a)

16) $2x+1$ (b)

17) Let $p(x) = x^3+10x^2+mx+n$

Since $(x+2)$ is a factor of $p(x)$, $p(-2)=0$

$\Rightarrow -8+4\times10-2m+n=0$

$\Rightarrow -8+40-2m+n=0$

$\Rightarrow 32-2m+n=0$

$n = 2m-32 \rightarrow (1)$

Since $(x-1)$ is a factor of $p(x)$, $p(1)=0$

$\Rightarrow 1+10+m+n=0$

$\Rightarrow 11+m+2m-32=0$

$\Rightarrow 3m-21=0$

$3m = 21$

$m = 7$

$n = 14-32$

$n = -18$ (c)

18) Let $p(x) = 4x^3+3x^2-4x+k$

$p(1) = 0$

$\Rightarrow \cancel{4}+3-\cancel{4}+k=0$

$\Rightarrow k=-3$ (d)

19) If $a+b+c=0$, then $a^3+b^3+c^3 = 3abc$

$$\frac{a^{2\times a}}{bc\times a}+\frac{b^{2\times b}}{ca\times b}+\frac{c^{2\times c}}{ab\times c} = \frac{a^3+b^3+c^3}{abc} = \frac{3abc}{abc} = 3 \text{ (d)}$$

20) If $x+y+z=0$, then $x^3+y^3+z^3 = 3xyz$

Checking:- $\cancel{a^2}-\cancel{b^2}+\cancel{b^2}-\cancel{c^2}+\cancel{c^2}-\cancel{a^2}=0$

$\cancel{a}-\cancel{b}+\cancel{b}-\cancel{c}+\cancel{c}-\cancel{a}=0$

$$\therefore \frac{(a^2-b^2)^3+(b^2-c^2)^3+(c^2-a^2)^3}{(a-b)^3+(b-c)^3+(c-a)^3} = \frac{3(a^2-b^2)(b^2-c^2)(c^2-a^2)}{3(a-b)(b-c)(c-a)}$$

$$= \frac{\cancel{3}(a+b)\cancel{(a-b)}(b+c)\cancel{(b-c)}(c+a)\cancel{(c-a)}}{\cancel{3}\cancel{(a-b)}\cancel{(b-c)}\cancel{(c-a)}}$$

$= (a+b)(b+c)(c+a)$ (d)