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X H.W-8 (MCQs)

1) If α and β are the zeroes of the polynomial ax^2-5x+c and $\alpha+\beta=\alpha\beta=10$, then (a) $a=5, c=1/2$ (b) $a=1, c=5/2$ (c) $a=5/2, c=1$ (d) $a=1/2, c=5$

2) If the zeroes of $p(x)=x^2+(a+1)x+b$ are 2 and -3, then (a) $a=-7, b=-1$ (b) $a=5, b=-1$ (c) $a=2, b=-6$ (d) $a=0, b=-6$

3) What should be subtracted to the polynomial $x^2-16x+30$, so that 15 is the zero of the resulting polynomial?

(a) 30 (b) 14 (c) 15 (d) 16

4) If α and β are the zeroes of $p(x)=x^2-6x+k$ and $3\alpha+2\beta=20$, then $k=$ — (a) -8 (b) 16 (c) -16 (d) 8

5) If α, β are zeroes of $f(x)=x^2-p(x+1)-c$, then $(\alpha+1)(\beta+1)=$ —

(a) $c-1$ (b) $1-c$ (c) c (d) $1+c$

6) The zeroes of $x^2+99x+127$ are

(a) both +ve (b) both -ve (c) both equal (d) one +ve and one -ve

7) The no. of polynomials have zeroes -2 and 5 is

(a) 1 (b) 2 (c) 3 (d) more than 3

8) If one zero of x^2+ax+b is negative of the other, then it

(a) has no linear term and constant term is -ve

(b) has no linear term and constant term is +ve

9) If 3 is the least prime factor of m and 5 is the least prime factor of n, then the least prime factor of $m+n$ is

(a) 11 (b) 2 (c) 3 (d) 5

10) HCF of two consecutive +ve integers is (a) 0 (b) 1 (c) 4 (d) 2

11) The smallest no. divisible by all no.s between 1 and 10 (both inclusive) is (a) 2020 (b) 2520 (c) 1010 (d) 5040

12) LCM$(p,q)=$ — if p and q are two prime no.s

(a) 1 (b) p (c) q (d) pq

13) HCF$(p,q)=$ — (a) 2 (b) 0 (c) either 1 or 2 (d) 1

14) The system of equations $x=0, y=3$ has

(a) a unique solution (b) no solution (c) two solutions (d) many

15) The pair of linear eq:s $y=0$ and $y=-5$ has

(a) one solution (b) two solutions (c) infinite (d) no solution.

16) If $am \neq bl$, then $ax+by=c$ and $lx+my=n$

(a) has unique solution (b) no solution (d) may or may not have a solution.

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17) The area of Δ formed by $x=3$, $x=y$ and $y=4$ is

(a) $\frac{1}{2}$ sq. unit (b) 1 sq. unit (c) 2 sq. unit (d) none

18) The no. of solutions of $3^{x+y}=243$; $243^{x-y}=3$ is

(a) 0 (b) 1 (c) 2 (d) infinite

19) $m=pq^3$, $n=p^3q^2$, then HCF(m,n) = __

(a) pq (b) pq^2 (c) p^3q^3 (d) p^2q^3

20) If the sum of two no.s is 1215 and HCF is 81, then the possible no. of pairs of such number is

(a) 2 (b) 3 (c) 4 (d) 5

X H.W-8 (MCQ-answers)

1) $\alpha+\beta = -\frac{B}{A} = \frac{5}{a}$

$\alpha\beta = \frac{C}{A} = \frac{c}{a}$

$\alpha+\beta = 10 \Rightarrow \frac{5}{a} = 10$

$\Rightarrow a = \frac{5}{10} = \frac{1}{2}$

$\alpha\beta = 10$

$\Rightarrow \frac{c}{a} = 10$

$\Rightarrow c = 10\times a = 10\times\frac{1}{2} = 5$

$\therefore a = \frac{1}{2}, c = 5$ (d)

2) $A = 1, B = a+1, C = b$

$\alpha+\beta = -\frac{B}{A} = -(a+1)$

$\Rightarrow 2-3 = -(a+1)$

$\Rightarrow \cancel{+}1 = \cancel{+}(a+1)$

$\therefore a = 0$

$\alpha\beta = \frac{C}{A} = b$

$\Rightarrow 2\times -3 = b$

$\therefore b = -6$

$a = 0, b = -6$ (d)

3) $x^2 - 16x + 30 - k = 0$

$\Rightarrow (15)^2 - 16(15) + 30 - k = 0$

$\Rightarrow 225 - 240 + 30 - k = 0$

$15 - k = 0$

$k = 15$ (c)

4) $a = 1, b = -6, c = k$

$\alpha+\beta = -\frac{b}{a} = 6 \rightarrow (1)$

$\alpha\beta = \frac{c}{a} = k \rightarrow (2)$

$3\alpha + 2\beta = 20$

$\Rightarrow \alpha + 2\alpha + 2\beta = 20$

$\Rightarrow \alpha + 2(\alpha+\beta) = 20$

$\Rightarrow \alpha + 2\times 6 = 20$

$\Rightarrow \alpha = 20 - 12 = 8$

$\beta = 6 - \alpha = 6 - 8 = -2$ [from eq: (1)]

$\therefore k = \alpha\beta = 8\times -2 = -16$ (c)

5) $f(x) = x^2 - px - p - c$

$a = 1, b = -p, c = -p - c$

$\alpha+\beta = -\frac{b}{a} = p$

$\alpha\beta = \frac{c}{a} = -p - c$

$\therefore (\alpha+1)(\beta+1) = \alpha\beta + (\alpha+\beta) + 1$

$= \cancel{-p} - c + \cancel{p} + 1$

$= 1 - c$ (b)

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6) both -ve (b)

7) more than 3 (d)

8) has no linear term and constant term is -ve (a)

9) 2 (b)

10) 1 (b)

11) 2520 (b)

12) pq (d)

13) 1 (a)

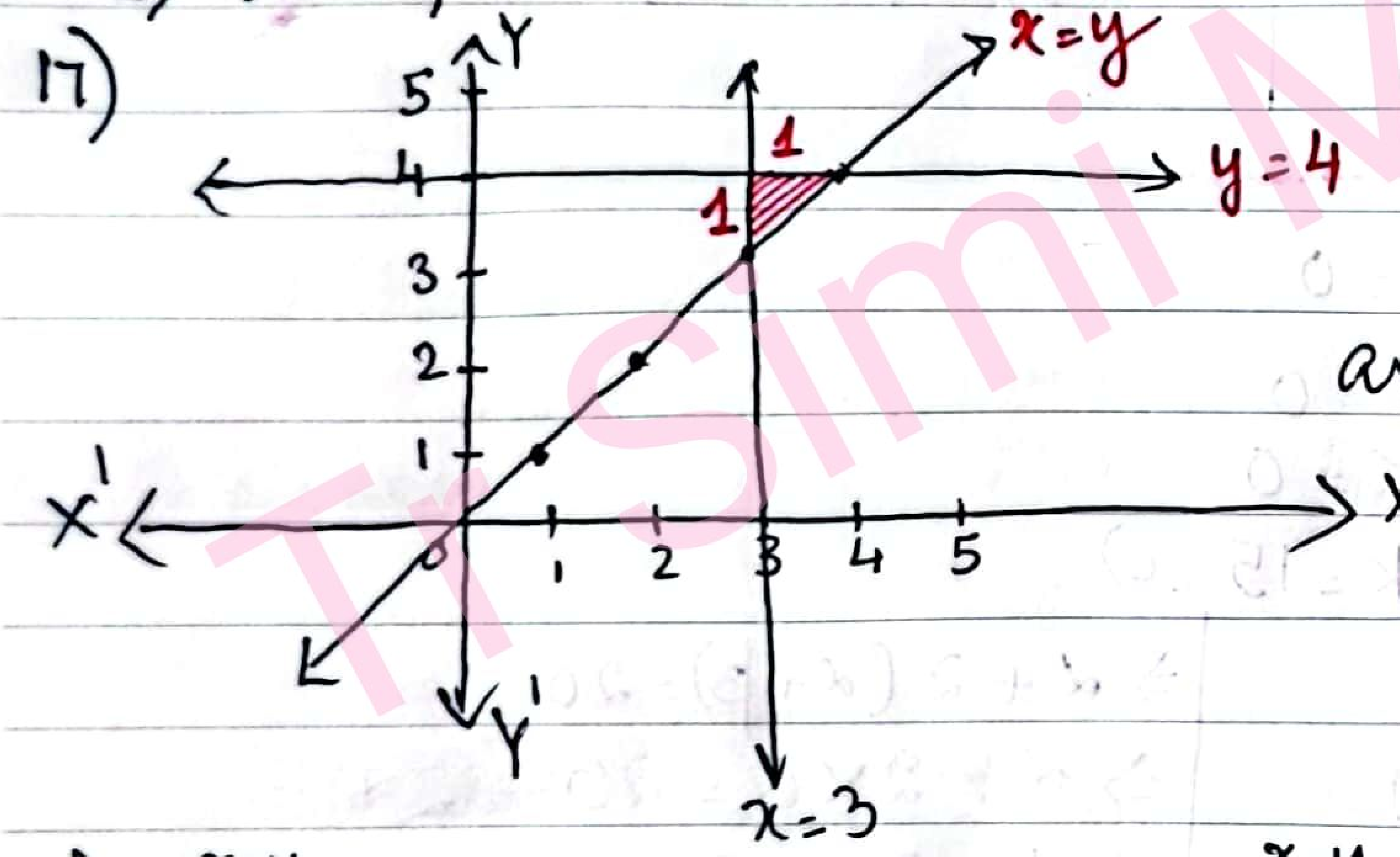
14) a unique solution (a)

15) no solution (d)

16) $\frac{a}{l} \neq \frac{b}{m}$ (has unique solution)

$\Rightarrow am \neq bl$ (a)

17)



area (Δ) $= \frac{1}{2} \times 1 \times 1$

$= \frac{1}{2}$ sq. unit (a)

18) $3^{x+y} = 243$

$\Rightarrow 3^{x+y} = 3^5$

$x + y = 5 \rightarrow (1)$

$(243)^{x-y} = 3$

$3^{5(x-y)} = 3^1$

$x - y = \frac{1}{5} \rightarrow (2)$

$\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$, no. of solutions = 1 (b)

19) HCF(m, n) = pq^2 (b)

20) $81x + 81y = 1215$

$x + y = 15$

(1, 14), (2, 13), (4, 11), (7, 8).

no. of pairs = 4

(c)