

SUBJECT: Mathematics EXAM II-Annual 2022 CLASS: II-Y
 GROUP: Set DATE: 07-12-22

(GENERAL INSTRUCTIONS FOR MARKING KEY)

(vi) D. by 5

$$\begin{aligned} x^2 + y^2 + 2x + 3y - \frac{131}{5} &= 0 \\ x = \frac{[-(-5) \pm \sqrt{(-5)^2 - 4(-2)(-\frac{131}{5})}]{2(-2)} \\ &= \frac{[-(-5) \pm \sqrt{25 + 104}]{-4} \\ &= \frac{[-(-5) \pm \sqrt{129}]{-4} \\ &= \frac{[-(-5) \pm \sqrt{129}]{-4} \end{aligned}$$

(vii) $\frac{y^2}{16} - \frac{x^2}{9} = 1$

$a^2 = 16$ $b^2 = 9$

$a = \pm 4$ $b = \pm 3$

$c^2 = a^2 + b^2$

$= 16 + 9 = 25$

$c = \pm 5$

foci $(0, \pm c) = (0, \pm 5)$ (1M)

Excentricity

$e = \frac{c}{a} = \frac{5}{4}$ (1M)

(viii) Foci $(\pm 3, 0)$, $2b = 10$

$c = \pm 3$ $b = 5$

$c^2 = 9$ $b^2 = 25$ (1M)

$a^2 = b^2 + c^2$
 $= 25 + 9 = 34$

$\frac{x^2}{34} + \frac{y^2}{25} = 1$ (1M)

(ix) $2\overline{CB} - 2\overline{CA}$

$= 2[\overline{OB} - \overline{OC}] - 2[\overline{OA} - \overline{OC}]$

$= 2[(-1, 1) - (2, -6)] - 2[(2, 5) - (2, -6)]$

$= 2(-3, 7) - 2(0, 11)$

$= (-6, 14) + (0, -22)$

$= (-6, -8)$ (2M)

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