



MATHS

BOOKS - NDA PREVIOUS YEARS

PAIR OF STRAIGHT LINES

Example

1. The bisectro of the acute angle between the straight lines $3x - 4y - 3 = 0$ and $12x + 5y + 6 = 0$ passes through which one of the following points?

A. (5,3)

B. (-3,6)

C. (2,7)

D. (-1,4)

Answer: c



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2. What is the locus for the point of intersection of the straight lines

$$(x/a) + (y/b) = m \text{ and } (x/a) - (y/b) = 1/m?$$

- A. circle
- B. parabola
- C. ellipse
- D. hyperbole

Answer: d



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3. What does the equation $x^3y + xy^3 - xy = 0$ represent?

- A. a pair of straight lines only
- B. a pair of straight lines and a circle

C. a rectangular hyperbola only

D. a rectangular hyperbola and a circle

Answer: b



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4. What is the value of λ if the straight line $(2x + 3y + 4) + \lambda(6x - y + 12) = 0$ is parallel to y axis?

A. 3

B. -6

C. 4

D. -3

Answer: a



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5. The value of k for which the lines $2x+3y+a=0$ and $5x+ky+a=0$ represent family of parallel lines is

A. 3

B. 4.5

C. 7.5

D. 15

Answer: c



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6. What is the equation of the line mid way between the lines $3x-4y+12=0$ and $3x-4y=6$?

A. $3x-4y-9=0$

B. $3x-4y+9=0$

C. $3x-4y-3=0$

D. $3x-4y+3=0$

Answer: d



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7. What is the product of the perpendiculars drawn from the point $\pm(\sqrt{a^2 - b^2}, 0)$ upon the line $bx \cos \alpha + ay \sin \alpha = ab$?

A. a^2

B. b^2

C. $a^2 + b^2$

D. $a+b$

Answer: b



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8. What is the acute angle between the lines represent by the equation

$$y - \sqrt{3x} - 5 = 0 \text{ and } \sqrt{3y} - x + 6 = 0?$$

A. 30° (*b*)

B. 45°

C. 60° (*d*)

D. 75°

Answer: a



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9. Find the equation of the perpendicular bisector of the line segment joining the points (1,1) and (2,3).

A. $2x+4y-11=0$

B. $2x-4y-5=0$

C. $2x-4y-11=0$

D. $x-y+1=0$

Answer: a



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10. What is the acute angle between the pair of straight lines

$\sqrt{2x} + \sqrt{3y} = 1$ and $\sqrt{3x} + \sqrt{2y} = 2$?

A. $\tan^{-1}\left(\frac{1}{2\sqrt{6}}\right)$

B. $\tan^{-1}\left(\frac{1}{\sqrt{6}}\right)$

C. $\tan^{-1}(3)$

D. $\tan^{-1}\left(\frac{1}{\sqrt{3}}\right)$

Answer: A



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11. The angle between the lines $x+y-3=0$ and $x-y+3=0$ is α and the acute angle between the lines $x - \sqrt{3}y + 2\sqrt{3} = 0$ and $\sqrt{3}x - y + 1 = 0$ is β which one of the following is correct?

- A. $\alpha = \beta$
- B. $\alpha > \beta$
- C. $\alpha < \beta$
- D. $\alpha = 2\beta$

Answer: B



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12. What is the angle between the straight lines $(m^2 - mn)y = (mn + n^2)x + n^3$ and $(mn + m^2)y = (mn - n^2)x + n^3$ where $m > n$?

A. $\tan^{-1}\left(\frac{2mn}{m^2 + n^2}\right)$

B. $\tan^{-1}\left(\frac{4m^2n^2}{m^4 - n^4}\right)$

C. $\tan^{-1}\left(\frac{4m^2n^2}{m^4 + n^4}\right)$

D. 45°

Answer: B



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