A TREATISE ON ALGEBRAICAL GEOMETRY

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A treatise on algebraical geometry by S. W. Waud

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S. W. WAUD

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ATREATISE

ON.

ALGEBRAICAL GEOMETRY.

BY THE

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(ab'-a'b) - (ab''-a''b) + (a'b''-a''b') = 0.

45. If I and I are the angles which two lines make with the axis of x.

$$\tan (t - t') = \frac{a - a'}{1 + a a'}, \ \cos((d - t')) = \frac{1 + a a'}{\sqrt{(1 + a')} (1 + a')} \quad . \qquad 2t$$

Art

46. The equation to a line, making a given angle with a given line, is

47. If two lines y = ax + b and y = a'x + b' are perpendicular to each other, we have 1 + a a' = 0, or the lines are

48. If p be the perpendicular from a given point $(x_1 y_1)$ on the line y = ax + b, then

49. The length of the straight line drawn from a given point, and making a given angle with a given straight line, is

$$p = \pm \frac{y_1 - \alpha x_1 - \delta}{\sqrt{1 + \alpha^2}} \frac{\sqrt{1 + \beta^2}}{\beta} \quad . \quad . \quad . \quad 29$$

- The perpendiculars from the apples of a triangle on the opposite sides meet in one point
- 51. If the straight line be referred to oblique axes, its equation is

$$y = \frac{\sin \theta}{\sin (\omega - \theta)} x + \theta. \qquad . \qquad . \qquad . \qquad . \qquad 30$$

The tangent of the angle between two given straight lines is

$$\tan (\delta - \delta') = \frac{(\alpha - \alpha') \sin \omega}{1 + \alpha \alpha' + (\alpha + \alpha') \cos \omega}$$

The equation to a straight line making a given angle with a given line is

$$y - y_1 = \frac{\pi \sin \omega - \beta (1 + \alpha \cos \omega)}{\sin \omega + \beta (\alpha + \cos \omega)} (x - x_1).$$

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$$x = \frac{X \sin (\omega - \theta) + Y \sin (\omega - \theta)}{\sin \omega} = \{X \sin X A y + Y \sin Y A y\} \frac{1}{\sin x A y}, \quad 34$$

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57. If the original axes be rectangular, and the new oblique,

$$y = X \sin \theta + Y \sin \theta$$

 $x = X \cos \theta + Y \cos \theta, \quad \cdot \quad \cdot \quad \cdot$

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58. Let both systems be rectangular,

 $y = X \sin \theta + Y \cos \theta = X \cos X A y + Y \cos Y A y$

 $x = X \cos \theta - Y \sin \theta = X \cos X A x + Y \cos Y A x.$

 To transform an equation between co-ordinates x and y, into another between polar co-ordinates r and s.

$$y = b + \frac{r \sin_{\alpha} (d + \varphi)}{\sin_{\alpha} \varphi},$$

$$x = a + \frac{r \sin_{\alpha} \{ \varphi - (d + \varphi) \}}{\sin_{\alpha} \varphi},$$

61. If the original axes be rectangular,

62. To express r and δ in terms of x and y,

$$\ell + \phi = \tan^{-1} \left\{ \frac{(y-b)\sin\omega}{x-a+(y-b)\cos\omega} \right\}$$

$$r^{2} = (x-a)^{2} + (y-b)^{2} + 2(x-a)(y-b)\cos\omega, \qquad (35)$$

63. If the original axes be rectangular, and the pole at the origin,

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