

§ 92. (Page 94.)

1. (a) $3x + 5y = 30$; (b) $ax = r^2$;
(c) $4x + 17 = 0$; (d) $10x - 2y = 7$; (e) $hx + ky = h^2 + k^2 - r^2$.
2. (a) $(2, -7)$; (b) $(-\frac{7}{3}, \frac{2}{3})$;
(c) $(-35, 11)$; (d) $(0, 0)$.
3. (c) $3x - 4y + 25 = 0$; (e) $9x + 13y = 25$; (f) $13x - 9y = 0$; (g) $24x - 7y = 125$.
4. $(\frac{c^2}{a}, \frac{r^2}{b})$.
5. $(\frac{f^2l - g - lc - fgm}{1 + fm + gl}, \frac{g^2m - f - mc - fgl}{1 + fm + gl})$.
6. $(1, 4)$.

§ 95. (Page 97.)

1. (a) 6; (b) 5; (c) 8; (d) \sqrt{e} .
2. $x^2 + y^2 - 10x - 4y = 7$.
3. $x^2 + y^2 - 16x + 51 = 0$.
4. $4x + 3y = 25$ and $3x - 4y = 25$.

§ 98. (Page 98.)

1. $12x + 8y = 95$.
2. $9x - 8y + 15 = 0$.
4. $(-13, -7)$.

MISCELLANEOUS EXERCISES. (Page 99.)

1. $3x + 4y = 25$.
2. $2x - 11y + 329 = 0$.
3. 113.
4. 29.
5. $\frac{x}{h} + \frac{y}{k} = 2$.
6. (a) $\frac{x-h}{x_1-x_2} = \frac{y-k}{y_1-y_2}$; (b) $(x_1 - x_2)(x-h) + (y_1 - y_2)(y-k) = 0$.
8. 7 : 4.
9. $(\frac{88}{115}, -\frac{111}{115})$.
10. 77.
12. $x^2 + y^2 - 12$.
13. $(a+c, b+d)$.
15. The point $(-a \cos a, -a \sin a)$.
16. $x^2 + y^2 - 6x - 3y = 0$.
17. $3x - y = 3k \pm k\sqrt{10}$.
18. $(\frac{38}{147}, \frac{30}{147})$.
20. $x^2 + y^2 = h, x$.
21. $x^2 + y^2 - ax - by = 0$.
22. $x^2 + y^2 - gx - fy = 0$.
23. $(\frac{1}{3}, \frac{2}{3})$.
24. $8(x^2 + y^2) - 25x + 75y + 71 = 0$.
25. 10 or $\frac{9}{2}$.
26. Centre divides **AB** externally in ratio $k^2 : 1$.
27. (a) $(7, 1)$; (b) **AD** = **DB**.
30. $(2, 1)$.
31. $\frac{238}{113}$.
32. $x^2 + y^2 - 2h(x-a) - 2k(y-b) = a^2 + b^2$.