

EXERCISE LXVII.

1. n 2. $\frac{3a}{2}$ 3. i 4. $1\frac{1}{2}$ 5. $-2\frac{1}{2}$
 6. $\frac{x^2+b}{x+b^2}$ 7. $\frac{a}{b}$ 8. ∞ 9. $\frac{3a}{a-6}$

EXERCISE LXVIII.

1. $x = 2, y = 1$ 2. $\begin{cases} x = 10, 23, 36, 49, \&c \\ y = 3, 8, 13, 18, \&c \end{cases}$
 3. $\begin{cases} x = 26, 19, 12 \text{ or } 5 \\ y = 1, 3, 5 \text{ or } 7 \end{cases}$ 4. $x = 3 \text{ and } y = 1$
 5. $\begin{cases} x = 4, 21, 38, 55, \&c \\ y = 2, 11, 20, 29, \&c \end{cases}$ 6. $x = 2 \text{ and } y = 3$
 7. $\begin{cases} x = 2, 43, 84, 125, \&c \\ y = 1, 13, 25, 37, \&c \end{cases}$ 8. $x = 5 \text{ and } y = 4$
 9. $\begin{cases} x = 12, 55, 98, \&c \\ y = 6, 28, 50, \&c \end{cases}$ 10. $x = 11 \text{ and } y = 4$
 11. $\begin{cases} x = 5, 165, 325, \&c \\ y = 1, 100, 199, \&c \end{cases}$ 12. $\begin{cases} x = 2, 6, 10, 14, \&c \\ y = 3, 20, 37, 54, \&c \end{cases}$
 13. $x = 2, y = 3, z = 4$ 14. $x = 11, y = 3, z = 2$
 15. 45 16. 54
 17. He pays 8 guineas and receives back 7 half-crowns
 18. $x = 2n$ and $y = n^2 - 1$ where n may be assumed at pleasure = any integral number; and it will be found that $x^2 + y^2$ is a square
 19. $x = \frac{n^2 + 1}{2n} \cdot y$ where n and y may be assumed at pleasure and it will be found that $x^2 - y^2$ is a square
 20. 98. 21. 109.
 22. No two fractions with denominators 10 and 15 added together will make $\frac{2}{3}$. Prove this.
 23. The problem is impossible. Prove this.
 24. 3, 6, 9, 12 or 15 £5 notes; 81, 62, 43, 24 or 5 £1 notes; 16, 32, 48, 64 or 80 crown-pieces.
 25. 22 and 3; 16 and 9; 10 and 15; or 4 and 21
 26. 3, 15 and 6; 7, 8 and 9; or 11, 1 and 12
 28. $2^n \times (2^{n+1} - 1)$ where n may be assumed = to any integral number.
 29. 417 30. 1 at \$50, 9 at \$30, and 90 at \$2.