

SOLUTIONS

① $1.1 \times 85 = 85 + 8.5$
 $= 93.5$

②
$$\begin{array}{r} 199 \\ 17 \overline{) 3397} \\ \underline{-17} \\ 169 \\ \underline{-153} \\ 167 \\ \underline{-153} \\ 14 \end{array}$$

③ $340 - 4 = 336$

④ $-625 + 621 = -4$

⑤ $1 + 3 + 6 + 10 + 15 = 35$

⑥ $\sqrt{1200} = 20\sqrt{3}$
$$\begin{array}{c} \wedge \quad \wedge \\ 100 \quad 12 \\ \textcircled{10} \textcircled{10} \quad \textcircled{6} \textcircled{2} \\ \quad \quad \quad \wedge \quad \wedge \\ \quad \quad \quad \textcircled{3} \textcircled{2} \end{array}$$

⑦ $\sqrt{83} \approx 9.11$
 $|10 - 9| = 1$

⑧ $9^5 = 59,049$
 $9^5 \div 9^3 = 9^2 = 81$

⑨ $4 \ 8 \ 12 \ 16 \ 20 \ 24 \ 28$

$32 \ 36 \ 40 \ 44 \ 48 \ 52 \ 56$
 $60 \ 64 \ 68 \ 72 \ 76 \ 80 \ 84$
 $88 \ 92 \ 96 \ 100 \ 104 \ 108 \ 112$
$$\begin{array}{r} 19 \\ 112 \end{array}$$

⑩ $2 + 4 + 8 + 16 + 32 + 64 + 128$
 $+ 256 + 512 + 1024 = 2046$

⑪ Anything 6 goes, 3
goes into. LCM = $4 \cdot 5 \cdot 6 = 120$

⑫ $6\sqrt{2} + 3\sqrt{5} - 2\sqrt{5} =$
 $6\sqrt{2} + \sqrt{5}$

⑬
$$\frac{\frac{A}{B} - \frac{B}{A}}{\frac{1}{A} + \frac{1}{B}} \cdot \frac{AB}{AB} = \frac{A^2 - B^2}{B + A}$$

$$= \frac{(A+B)(A-B)}{B+A}$$

$$= A - B$$

⑭ $9 \cdot 9 \cdot 8 = 648$

⑮ Square root and square
cancel. $3^3 = 27$

⑯ 11 nots \rightarrow not true \rightarrow false

⑰ $\frac{24\sqrt{12}}{12} = 2\sqrt{12} = 2 \cdot 2\sqrt{3} = 4\sqrt{3}$

⑱ $\frac{24(\sqrt{19} - \sqrt{13})}{\sqrt{19} - \sqrt{13}} = 4\sqrt{19} - 4\sqrt{13}$

⑲ $\frac{60 - 54}{60} = \frac{6}{60} = 0.1 = 10\%$

⑳ sum = $-\frac{b}{a} = -\frac{5}{2}$
prod. = $\frac{c}{a} = -\frac{8}{2}$
 $-3/2$

㉑ $\eta^0 = 1, \eta^1 = \eta, \eta^2 = \sim 9, \eta^3 = \sim 3,$
 $\eta^4 = \sim 1$, repeats every 4.
 $47 \div 4$ has remainder 3 $\rightarrow 3$

㉒ 1080

㉓ $2 \overline{) 24 \ 28} \quad 2 \cdot 2 \cdot 6 \cdot 7 = 168$
 $2 \overline{) 12 \ 14}$
 $6 \ 7$

㉔ Minimum is at the

vertex, $x = -\frac{b}{2a} = -\frac{2}{2(-1)} = -1$
 $y = (-1)^2 + 2(-1) + 2 = 1 - 2 + 2 = 1$

㉕ $6^3 = 216$