

① LET $x = 8765432$
 SO $x-5 = 8765427$
 $x+5 = 8765437$

NOW THE PRODUCT IS
 $x^2 - (x-5)(x+5)$
 $x^2 - (x^2 - 25)$
 $\boxed{25}$

② Given
 $x+y+z=6$ we get $y+z=6-x$
 SUB. INTO 2nd EQ

$x(y+z) = 5$
 $x(6-x) = 5$
 $6x - x^2 = 5$
 $0 = x^2 - 6x + 5$
 $0 = (x-5)(x-1)$
 $\boxed{x=5} \quad \boxed{x=1}$

From
 $x+y+z=6$ we get $x+z=6-y$
 SUB. INTO 3rd EQ.

$y(x+z) = 8$
 $y(6-y) = 8$
 $6y - y^2 = 8$
 $0 = y^2 - 6y + 8$
 $0 = (y-4)(y-2)$

$\boxed{y=4} \quad \boxed{y=2}$

Solution to
 $x + y + z = 6$

are

5	4	-3
5	2	-1
1	4	1
1	2	3

③ (3,0) to (0,3)
 $a = \text{Distance} = 3\sqrt{2} \rightarrow 45^\circ - 45^\circ - 90^\circ \Delta$
 $b = 7 \quad 1+2+24+720+40320+362800$
 $3a^2 - (b+4)^2$
 $3(18) - (11)^2 = \boxed{67}$

④ $B = 34$
 $D = 7$ coeff of x^2
 $F = 0$ because
 Row 3 is $2R_1 + R_2$
 So $B^2F - DF^2 = \boxed{0}$

⑤ Use Binomial Expansion
 $1 + 4(-i) + 6(-i)^2 + 4(-i)^3 + (-i)^4$
 $1 - 4i + 6 - 4i + 1$
 $\boxed{-4}$ or $\boxed{-4 + 0i}$

⑥ add all 3
 $x + 3y - 2z = 12$
 $3x - 2y + z = 15$
 $2x + 5y - 5z = 27$
 $6x + 6y - 6z = 54$
 DIVIDE BY 6
 $x + y - z = 9$

So $\frac{x+y-z+1}{5} = \boxed{2}$

⑦ $\log_{10} 2 = x \rightarrow 2 = 10^x$
 $\log_{10} 3 = y \rightarrow 3 = 10^y$
 So $\frac{10^{x+y}}{10^{x-y}} = \frac{10^x(10^y)}{10^x \div 10^y}$
 $\frac{2 \cdot 3}{2 \div 3} = 6 \div \frac{2}{3} = \boxed{9}$

⑧ $\frac{a-x}{a-b} + \frac{a+x}{a+b} = \frac{bx-a^2}{a^2-b^2}$
 $\frac{a^2-b^2}{a^2-b^2} (a-x)(a+b) + (a+x)(a-b) = bx-a^2$
 $a^2 + ab - ax - bx + a^2 - ab + ax - bx =$
 $2a^2 - 2bx = bx - a^2$
 $3a^2 = 3bx$
 $\frac{a^2}{b} = x$

⑨ $AB = [(1+\sqrt{2}) + \sqrt{3}][(1+\sqrt{2}) - \sqrt{3}]$
 $= (1+\sqrt{2})^2 - 3 = 1 + 2\sqrt{2} + 2 - 3$
 $AB = 2\sqrt{2}$
 $\frac{AB}{c} = \frac{2\sqrt{2}}{\sqrt{3}} = \boxed{6}$

⑩ $f(5.63) = [1689 - 31.6169] = [-14.81]$
 $f(5.63) = -15$
 $h(-2) = 2(-5)^2 - 70 = 60$
 $g(-15, 60) = \frac{45}{2}$ or 22.5

⑪ $f(-2) = 8 + 10 + 4 = 22$
 $f(3) = 18 - 15 + 4 = 7$
 $g(-2) = 2(22) - 7 = 37 \rightarrow (-2, 37)$
 $g(3) = 2(7) - 7 = 7 \rightarrow (3, 7)$
 $D = \sqrt{(-2-3)^2 + (37-7)^2} = \sqrt{925} = \boxed{5\sqrt{37}}$

⑫ $(3x-4)(2x+7) = 0$
 $\frac{4}{3} \quad -\frac{7}{2}$ so $A = \frac{4}{3}$
 $B = 58 \quad 20 - 21 - 29 \Delta$ by 2
 $x^2 - 6x + 9 + y^2 + 2y + 1 = -1 + 9 + 1$
 $(x-3)^2 + (y+1)^2 = 9$ so $C =$
 $ABC = \frac{4}{3}(58)(3) = \boxed{232}$

⑬ $b(x-2)^2 + c(x-2) + d$
 $bx^2 - 4bx + 4b + cx - 2c + d$
 $b = 3 \quad -4b + c = -8$
 $-12 + c = -8 \quad c = 4$
 $4b - 2c + d = 11$
 $12 - 8 + d = 11 \quad d = 7$
 So $b + c + d = \boxed{14}$

⑭ $2x - y + 9 = 0 \xrightarrow{M_2} 4x - 2y = -18$
 $3x + 2y - 4 = 0 \quad 3x + 2y = 4$
 $-4 - y + 9 = 0 \quad 7x = -14$
 $\boxed{y = 5} \quad \boxed{x = -2}$
 So $x + y = \boxed{3}$

⑮ $S = \frac{1}{2} \rightarrow$ neg coeff of x^2
 $P = -5 \rightarrow$ constant $\div 4$
 So $P + S = -4.5$