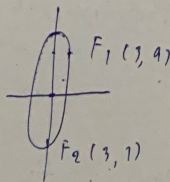


1. ต.น.ว.ว.ว. = (3, 5) มีแกนตั้ง $c = \sqrt{25-9} = 4 \Rightarrow F(3, 5 \pm 4) = F_1(3, 9), F_2(3, 1)$

เส้นตรงที่ $\frac{y-5}{x-0} = \frac{9-5}{3-0}$

~~xxxx~~
 $3y - 4x - 15 = 0 \Rightarrow \frac{13(1) - 4(3) - 15}{\sqrt{3^2 + 4^2}} = \frac{24}{5} \neq$



2. $1210 = 11 \times 11 \times 10$

จำนวนหลักของ 10^{10} ; 11^{109} จำนวนหลัก \perp

$11^{109} = 10(\log) + 1$

$11^{111} = 1210(\log) + 121$

\therefore เลข 11^{111} มี 1210 หลัก \perp

3. ลำดับ $a_1, a_2, a_3, \dots, a_n, \dots$ เป็นลำดับ ~~...~~

ถ้า $a_1 + a_2 = 10$ และ $a_{n+2} - a_n = 3$ เมื่อ $n \in \{1, 2, 3\}$

หา a_n ;

$a_{n+2} - a_n = 3$

$a_{1+2} - a_1 = 3$

$a_3 - a_1 = 3$

$a_1 + 2d - a_1 = 3$

$2d = 3$

$d = \frac{3}{2} \text{ -D}$

$a_1 + a_2 = 10$

$a_1 + a_1 + d = 10$

$2a_1 + d = 10$

$a_1 = \frac{17}{4} \text{ -D}$

หา S_n และ S_{10}

$S_n = \frac{n}{2}(2a_1 + (n-1)d)$

$S_{10} = \frac{10}{2} \left(2\left(\frac{17}{4}\right) + (10-1)\left(\frac{3}{2}\right) \right) = 1340 \text{ -D}$

4. $S_n = \frac{a_1(1-r^n)}{1-r}$

$13 = \frac{a_1(1-r^{20})}{1-r}$

$a_1(1-r^{20}) = 13 - 13r \text{ -D}$

$17 = \frac{a_1(1-r^{20})}{1-r}$

$\frac{a_1(1-r^{20})}{1+r} = 17$

$a_1(1-r^{20}) = 17 + 17r \text{ -D}$

$C = 0;$

$17 + 17r = 13 + 13r$

$30r = -4$

$r = -\frac{2}{15} \text{ -D}$

5. $S_n = \frac{a_1(r^n - 1)}{r - 1}$

$510 = \frac{2(2^n - 1)}{2 - 1}$

$255 = 2^n - 1$

$2^n = 256$

$n = 8$

6. อัตราเฉลี่ย $N = \frac{f}{(t+h)+1} - \frac{f}{t+1}$

หาค่า $t = 3$ นาที;

$= \lim_{h \rightarrow 0} \frac{\frac{f}{(3+h)+1} - \frac{f}{3+1}}{h}$

$= \lim_{h \rightarrow 0} \frac{\frac{f}{4+h} - \frac{f}{4}}{h}$

$= \lim_{h \rightarrow 0} \frac{3f - 3f - fh}{4h(4+h)}$

$= \lim_{h \rightarrow 0} \frac{-f}{4+h} = -\frac{f}{4} = -\frac{1}{2} \frac{f}{\text{min}}$

7. $y = f(x)$

$x = \frac{-4 \pm 2}{2} = -1$

จุดยอด $(-1, k) \text{ -D}$

$f(x) = a(x-h)^2 + k$

$f(x) = a(x+1)^2 + k$

$(2, 0); y = f(x)$

$f(2) = 0$

เมื่อ $x = 2, y = 0$

$f(2) = a(2+1)^2 + k$

$0 = 9a + k \text{ -D}$

$f(0) = a(0+1)^2 + k$

$16 = a + k \text{ -D}$

$9a + k = 16 \text{ -D}$

$a = -8; 16 = 9k \Rightarrow k = \frac{16}{9}$

8. $1 - x + x < -\frac{2}{7} + x < 7 - x + x$

$1 < -\frac{2}{7} + 7$

$1 + \frac{2}{7} < x < 7 + \frac{2}{7}$

\therefore จุดยอด $(-1, k)$

f มีค่าสูงสุด $= 18$

10) $(f \circ g)'(x) = 3x^2 + 1$

$(f \circ g)(x) = x^3 + x + C$ - 0

$f(x) = 3x + 1$

$(f \circ g)(x) = f(g(x)) = 3g(x) + 1 = 3(x^3 + x + C) + 1 = 3x^3 + 3x + 3C + 1 = 0$

11) $C = 0$;
 $3g(x) + 1 = x^3 + x + C$
 $3(1) + 1 = C + 0 + C$
 $C = 4$

$3g(x) + 1 = x^3 + x + 4$
 $g(x) = \frac{1}{3}(x^3 + x + 3)$
 $\int_0^1 g(x) dx = \frac{1}{3} \left(\frac{x^4}{4} + \frac{x^2}{2} + 3x \right) \Big|_0^1 = \frac{5}{4}$

12) $x \log_5 x^2 = \frac{25}{x^3}$

$\log_5 x \log_5 x^2 = \log_5 \left(\frac{25}{x^3} \right)$

$(\log_5 x^2)(\log_5 x) = \log_5 25 - \log_5 x^3$

$(2 \log_5 x)(\log_5 x) = 2 - 3 \log_5 x$
 $2a^2 = 2 - 3a$
 $2a^2 + 3a - 2 = 0$
 $(2a - 1)(a + 2) = 0$
 $a = \frac{1}{2}, -2$

$\log_5 x = \frac{1}{2}, -2$
 $x = 5^{\frac{1}{2}}, 5^{-2}$
 $x = \sqrt{5}, \frac{1}{25}$

13) $\frac{N+1}{2} = \frac{40+1}{2} = 20.5 \rightarrow$ $\frac{b_2 + b_0}{2} = b_1$

14) 24 800 2777

40% $\frac{140}{100} \times 800 = 1120$ 2777

50% $\frac{100}{50} \times 1120 = 2240$ 2777*

15) $50 = 2 \times 5^2$

$600 = 2^3 \times 3 \times 5^2$

$a > b \rightarrow 2 \times 3 \times 5^2$ $600 \times 2^3 \times 5^2$

$a + b = 150 + 200 = 350$

16) $\frac{6}{4} \frac{10}{8} \frac{14}{12} \frac{30}{16} \frac{46}{20} \frac{66}{24} \frac{90}{28}$

17) $\frac{1}{2} \frac{3}{4} \frac{7}{8} \frac{15}{16} \frac{31}{32} \frac{63}{64}$