①

$2^1 \quad 2^7 \quad 2^8$

$2+4+8+16+32+64+128+256$

②

$a_1+a_2+a_3+a_4+\ldots+a_{19}+a_{20}=13$ — (1)

$a_1-a_2+a_3-a_4+\ldots+a_{19}-a_{20}=17$ — (2)

(1)+(2): $2a_1+2a_3+\ldots+2a_{19}=30$ — (3)

(1)−(2): $2a_2+2a_4+\ldots+2a_{20}=-4$ — (4)

③

$a_1+a_2=10$ — (1)

$a_{n+2}-a_n=3$ — (2)

$\underbrace{a_1+\overbrace{a_2}^{13}}_{10}+a_3+\ldots+a_{40}=?$

(2) için $n=1$:

$a_3-a_1=3$ — (3)

(1)+(3): $a_2+a_3=13$

$a_1=7$

$a_2=3$

$a_3=10$

$a_4=13$

$a_5=23$

$a_6=36$

$n=2$: $a_4-a_2=3$

$n=3$: $a_5-a_3=3$

$n=39$: $a_{41}-3$

$\underbrace{a_1+a_2}_{10}+a_3+a_4+\ldots+a_{39}+a_{40}$

$a_3-3+a_4-3+a_5-3+a_6-3+\ldots+a_{41}-3+a_{42}-3$

$(a_3+a_4+a_5+a_6+\ldots+a_{41}+a_{42})-120=x$

$(a_5-3+a_6-3+a_7-3+a_8-3+\ldots+a_{43}-3+a_{44}-3)-120$

$(a_7+a_6+a_7+a_8+\ldots+a_{43}+a_{44})-240$

$5 \to 240$

$40 \to 1920$

$x+120+10=$ ___

$x+130=$ ___

$-1920+130=1890$

(4) $11^{111} \div 1210$

$(11^{10})^{10} \times 11^{11}$

$11^{100} \div 1210$ เศษ 1

$11 \div 1210$ เศษ 11

$121 \div 1210$ เศษ 121

$1331 \div 1210$ เศษ 121

$14641 \div 1210$ เศษ 121

⋮

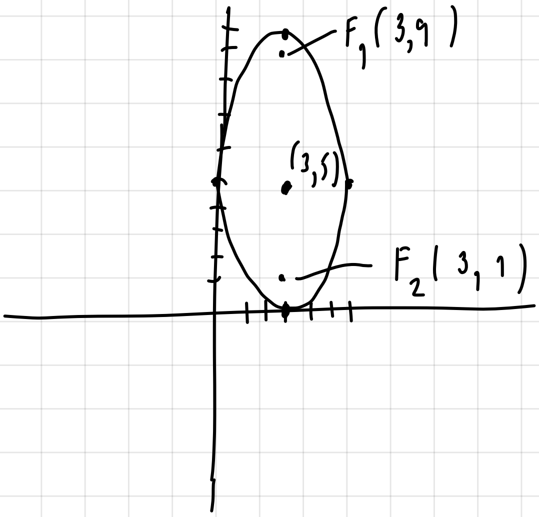
(121) ans

$1210 \overline{)1331}$
1

(5) $\frac{(x-3)^2}{9} + \frac{(y-5)^2}{25} = 1$ → แกน y เป็นแกนเอก

จุดศก. (3, 5)

$a = 5$, $b = 3$ | $a^2 = b^2 + c^2$, $c = 4$



ผ่าน (3,9) และ (0,5) $m = \frac{4}{3}$

$y - y_1 = m(x - x_1)$

$y - 5 = \frac{4}{3}(x - 0)$

$3y - 15 = 4x$

$0 = 4x - 3y + 15$

ระยะ (3,1) กับ $4x - 3y + 15$

$d = \frac{4(3) - 3(1) + 15}{\sqrt{10}}$

$d = \frac{12 - 3 + 15}{\sqrt{10}} = \frac{24}{\sqrt{10}} = \frac{24\sqrt{10}}{10}$

5

$\frac{18-6}{3}$

$\frac{81}{9}$

$\sqrt{90}$

ผ่าน (3, 1) และ (0, 5) $m = -\frac{4}{3}$

$y - 5 = -\frac{4}{3}(x - 0)$

$3y - 15 = -4x$

$0 = 3y + 4x - 15$

ระยะ (3, 9) กับ $3y + 4x - 15$

$\frac{3(9) + 4(3) - 15}{\sqrt{90}}$ $\frac{24}{\sqrt{90}}$

$f(x) = 3x+1$ $\quad y = 3x-1$

$(f\cdot g)'(x) = 3x^2+1$ $\quad x = \frac{y+1}{3}$

$(f\cdot g)(x) = x^3+x+C$ — ①

$f(x) = 3x+1$

$(f\cdot g)(x) = f(g(x))$

$= 3g(x)+1$ — ②

①, ②: $3g(x)+1 = x^3+x+C$

양변 $g(0)=1$ $x=0$ 대입

$3f(1)+1 = 0+0+C$

$C = 4$

$3g(x)+1 = x^3+x+4$

$g(x) = \frac{1}{3}(x^3+x+3)$

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

$= \frac{1}{3}\left(\frac{1}{4}+\frac{1}{2}+3\right)-0$

$= \frac{5}{4}$, (1.1)

(7)

$1-x < -\frac{3}{7} < 7-x$

$1 < x-\frac{3}{7} < 7$

$7-7x < -3 < 49-7x$

$7x-7 > 3 > 7x-49$

$x-1 > \frac{3}{7} > x-7$

$x-7 < \frac{3}{7} < x-1$

$\frac{3}{7} < x-1 \cup x-7 < \frac{3}{7}$

$3 < 7x-7 \quad 7x-49 < 3$

$10 < 7x \quad 7x < 52$

$x > \frac{10}{7} \quad x < \frac{52}{7}$

$\frac{10}{7} < x < \frac{52}{7}$

$\frac{14}{7}, \frac{21}{7}, \frac{28}{7}, \frac{35}{7}, \frac{42}{7}, \frac{49}{7}, \frac{56}{7}$

ตัวเลขที่ปนคือ 2, 3, 4, 5, 6

$x-\frac{3}{7} = 2$

$x = \frac{14}{3}$

$x-\frac{3}{7} = 3$

$x = \frac{21}{3}$

$x-\frac{3}{7} = 4$

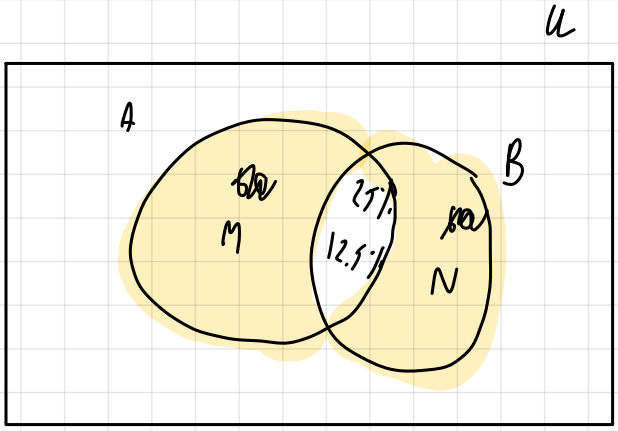
$x = \frac{28}{3}$

$\frac{14}{3}, \frac{21}{3}, \frac{28}{3}$

$x = 7$

$x = 14$

(8)



$(A-B)\cup(B-A) = 120$

$M+N = 120$

ต้องหา $A\cap B$

$\frac{25}{100}$ $n(A) = x \rightarrow nA = 4x$

$\frac{12.5}{100}$ $n(B) = x \rightarrow nB = 8x$

$[n(A) - n(A\cap B)] + [n(B) - n(A\cap B)] = 120$

$4x - n(A\cap B) + 8x - n(A\cap B) = 120$

$4x - x + 8x - x = 120$

$10x = 120$

$x = 12$

$n(A\cup B) = 120 + 12 =$

$N = \frac{8}{t+1}$

$t = 0$

$N = 8$ ตอนเริ่มมี 8 g

$N = \frac{8}{4} = 2$

3 นาที มี 2 g

$\Delta R = \frac{\Delta N}{t}$

$= \frac{8-2}{3}$

$= \frac{6}{3} = 2$ g/นาที

$\frac{8}{16} = -\frac{1}{2}$

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

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

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

$(2\log_5 x)(\log_5 x) = 2 - 3\log_5 x \rightarrow \log_5 x = a$

$2a^2 = 2 - 3a$

$2a^2 + 3a + 2 = 0$

$(a+2)(2a-1) = 0; \quad a = \frac{1}{2}, -2$

$\log_5 x = \frac{1}{2}, \quad \log_5 x = -2$

$x = \sqrt{5} \qquad x = \frac{1}{25}$

$\frac{\sqrt{5}}{25}$ ตอบ

(12) ซื้อ 800 ตั้งราคา x บาท

ลด $\frac{50}{100}(x) = \frac{50x}{100}$ → ขาย $\frac{50x}{100}$

กำไร $\frac{40}{100}(800) = 320$ → ขาย 1120

$$\frac{50x}{100} = 1120$$

$$x = 2240$$ ตอบ ✓

(13)

65 → 19

62 → 20

60 → 21

1 2 3 4 (5) (6) 7 8 9 10

$$\frac{20+21}{2} = \frac{62+60}{2}$$

$$= \frac{122}{2} = 61$$

(16) $S = \{1, 2, 3, \dots 99\}$

S ทั้งหมด = 99

จ.คู่ที่มี 6 => 6, 16, 26, 36, 46, 56, 60, 62, 64, 66, 68, 76, 86, 96 = 14

$\frac{14}{99}$ Ans

(17) $63a + 14b + c = 486$

$7(9a + 2b) = 486$

$7(9a + 2b) =$

$9a + 2b =$

$9(\ ) + 2(\ ) =$

$486 - 3 = 483$

$63(6) = 378$

$14(7) = ~~112~~$

~~490~~ 98

476

486 − 9 = 477

486 − 8 = 478

486 − 17 = 469

486 − 47 = 439

486 − 9

a = 7
b = 3
c = 3
= 13

5 6 (7) 8 9 → $\frac{35}{5} = 7$

(20) $50 \times 600 = a \times b$

$a \times b = 30,000$

ห.ร.ม. = 50

ค.ร.น. = 100

200 x 150

เลข 3 หลัก