

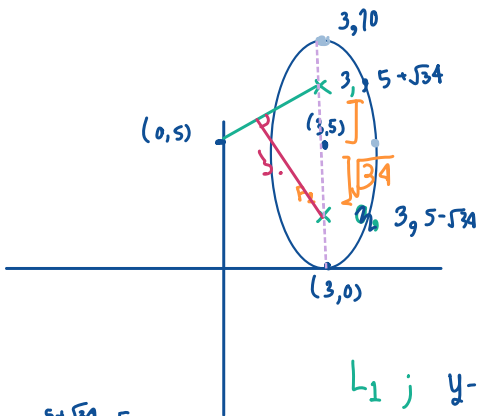
$$\textcircled{1} \quad \frac{(x-3)^2}{3^2} + \frac{(y-5)^2}{5^2} = 1$$

$$c^2 = a^2 + b^2$$

$$c^2 = 3^2 + 5^2$$

$$3c = 9 + 25$$

$$c = \sqrt{34}$$



$$F_2 = (3, 5 - \sqrt{34})$$

$$\frac{5 + \sqrt{34} - 5}{3 - 0}$$

$$\frac{\sqrt{34}}{3}$$

$$L_1: y - 5 = \frac{\sqrt{34}}{3}x$$

$$3y - 15 = \sqrt{34}x \quad \sqrt{34}x - 3y + 15$$

$$d(F_2 - L_1) = \frac{|\sqrt{34}(3) - 3(5 - \sqrt{34}) + 15|}{\sqrt{3\sqrt{34} - 15 + 3\sqrt{34} + 15}}$$

$$\sqrt{3\sqrt{34}}$$

$$\approx \frac{21}{5} \#$$

$$\textcircled{2} \quad 11^{111} \div 1210 \text{ remainder}$$

$11^1$	11	11
$11^2$	121	121
$11^3$	1331	121
$11^4$	14641	120
$11^5$	161051	121
$11^6$	1771561	121
$11^7$	19487171	121

$$1210 \overline{) 14641}$$

$$\underline{1210} \phantom{0}$$

$$2541$$

$$\underline{2420}$$

$$121$$

$$(61, 051)$$

$$(121)$$

$$1210 \overline{) 161051}$$

$$\underline{1210} \phantom{00}$$

$$40051$$

$$\underline{36300}$$

$$3751$$

$$\frac{1210}{5}$$

$$\underline{3630}$$

$$4840$$

$$3751 -$$

$$\underline{3630}$$

$$121$$

$$\textcircled{3} \quad a_1 + a_2 = 10$$

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

1210

$$a_1 + a_1 + d = 10$$

$$2a_1 + d = 10$$

$$1.5 \quad a_1 = 4.25$$

$$2d = 3$$

$$d = 1.5$$

$$a_{40} = a_1 + 39d$$

$$= 4.25 + 39(1.5)$$

$$= 62.75$$

197971

$$a_1 + a_1 r = 10$$

$$a_1(1+r) = 10$$

$$a_1 r^2 - a_1 = 3$$

$$a_1(r^2 - 1) = 3$$

$$a_1(r+1)(r-1) = 3$$

$$\frac{1}{r-1} = \frac{10}{3}$$

$$3 = 10r - 10$$

$$10r = 13$$

$$r = \frac{13}{10}$$

$$\frac{(4.25 + 62.75)(40)}{2}$$

$$67 \times 20$$

$$= 1340 \#$$

$$\textcircled{4} \quad 2a_1 + 2a_2 + 2a_3 + \dots + 2a_{10} = 30$$

$$2(a_1 + a_3 + \dots) = 15$$

$$a_1(1+r^2+r^4+\dots) = 15$$

$$2a_2 + 2a_4 + 2a_6 + \dots + 2a_{20} = -4$$

$$2(a_2 + a_4 + a_6 + \dots + a_{20}) = -4 \Rightarrow -2$$

$$a_2(1+r^2+r^4+\dots+r^{18}) = -2$$

⊖

$$\frac{a_2}{a_1} = \frac{-2}{15}$$

$$\frac{a_1 r}{a_1} = \frac{-2}{15} \therefore r = \frac{-2}{15} \#$$

⑤  $2 + 2^2 + 2^3 + 2^4 + \dots + 2^n = 510 \quad n = ?$   
 $2 + 4 + 8 + 16$

$$\frac{a_1(1-r^n)}{1-r} = 510 \quad \frac{2(1-2^n)}{1-2} = 510$$

$$1-2^n = -255$$

$$256 = 2^n$$

$$n = 8 \#$$

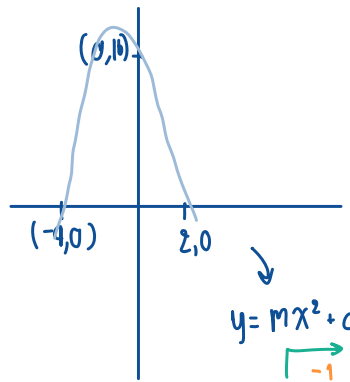
⑥  $N = \frac{8}{t+1} = f(t)$

$$\frac{dN}{dt} = f'(t) = \frac{(t+1)(0) - 8(1)}{(t+1)^2}$$

$$f'(t) = \frac{-8}{t^2+2t+1}$$

$f'(3) = ?$   $f'(3) = \frac{-8}{16} = -\frac{1}{2} = 0.5 \#$

⑦



$$f(-4) = 0$$

$$f(2) = 0$$

$$f(0) = 16$$

$$y = mx^2 + c$$

$$0 = m(16) + c \quad f'(-4) = -1 \quad 16 = 0 + c \quad \therefore c = 16$$

$$0 = m(4) + c \quad f'(2) = -4$$

9

$$1-x < -\frac{3}{4} < 7-x$$

x(-1) j

$$\boxed{x-1 > \frac{3}{4} > x-7}$$

$$x-1 > \frac{3}{4}$$

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

$$7x-7-3 > 0$$

$$0 > 7x-49-3$$

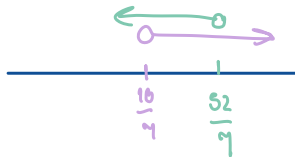
$$7x-10 > 0$$

$$0 > 7x-52$$

$$x > \frac{10}{7}$$

$$7x-52 < 0$$

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



$$9 \dots 10 \dots \frac{52}{7}$$

~~$$x-1 > x-7$$~~

$$x \in \mathbb{R}$$

6#

~~$$\frac{1}{7}, \frac{14}{7}, \frac{21}{7}, \frac{28}{7}, \frac{35}{7}, \frac{42}{7}, \frac{49}{7}, \frac{56}{7}$$~~

10

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

$$f \circ g(x) = x^3 + x + c$$

$$f(g(x)) = x^3 + x + c$$

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

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

$$g(0) = 1$$

$$\frac{c-1}{3} = 1$$

$$c = 4$$

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

$$\int_0^1 g(x)$$

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

$$\frac{5}{3} - 1 = \frac{2}{3} \#$$

11

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

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

$$x^2 = 25 (x^{-3})$$

$$x^5 = 25$$

$$x = \sqrt[5]{25}$$

$$(5^2)^{\frac{1}{5}}$$

13

40 คน

19	20	Med ↓	21
65	62	⋮	60

$$\text{Med } \frac{62+60}{2} = \frac{122}{2} = 61 \#$$

14

ราคา 800

กำไร 40%

$$\frac{140}{100} \times 800 = 1120$$

$$\square - 50\% = 1120$$

$$\frac{50}{100} \times \square = 1120$$

$$\square = 1120 \times \frac{200}{50}$$

$$= 2240 \#$$

15

$$a \times b = u \times v$$

$$= 50 \times 600$$

$$= 30,000$$

$$a \times b = 30,000$$

$$a + b = ?$$

$$\boxed{200 \ 150} \#$$

16

1)	จำนวน	Med	$\bar{x}$
	2	2	<del><math>2+2+6+2+2+7</math></del>

2)	7	7	$\frac{11+91+17}{7}$	7
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18

$$63a + 14b + c = 486 \quad a+b+c = ?$$

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

$$9a+2b = 69 \quad c = 3 \quad \begin{array}{r} 7 \overline{) 486} \\ \underline{42} \phantom{0} \\ 69 \phantom{0} \\ \underline{63} \phantom{0} \\ 69 \phantom{0} \\ \underline{63} \phantom{0} \\ 69 \phantom{0} \\ \underline{63} \phantom{0} \\ 69 \phantom{0} \end{array} \quad 3$$

$$a+b+c = 5+8+3 = 16$$

$$63+3$$

$$45+24 \leftarrow a=5, b=8$$

$$54+15$$

$$36+33$$

$$27+42$$

19

$$1-10$$

$$11-20$$

$$21-30$$

$$\frac{1}{10}$$

$$\left(\frac{1}{10}\right)^5 \left(\frac{9}{10}\right) \left(\frac{1}{10}\right)^2 \left(\frac{1}{9}\right)$$

$$61-70 \rightarrow$$

$$71-80$$

$$\frac{9}{10}$$

$$6 \ 16 \ 26 \ 36 \ 46 \ 56 \ |$$

$$\frac{81-90}{91-99}$$

$$60 \ 61 \ 62 \ \dots \ 69 \mid 10+6+3$$

$$76 \ 86 \ 96 \qquad 19$$

$$19 - (61 \ 63 \ 65 \ 67 \ 69)$$

$$14 / 99 \#$$

## Part 2

⑤

$$6 \xrightarrow{4} 10 \xrightarrow{8} 18 \xrightarrow{12} 30 \xrightarrow{16} 46 \xrightarrow{20} 66 \xrightarrow{24} 90$$

④

	A	H	F
3 (	E	O	J
1 (	G	?	I



⑦

$$10 \xrightarrow{4} 14 \xrightarrow{5} 19 \xrightarrow{8} 27 \xrightarrow{17} 44 \xrightarrow{44} 88$$

⑧

$$1 \xrightarrow{2} 3 \xrightarrow{4} 7 \xrightarrow{8} 15 \xrightarrow{16} 31 \xrightarrow{32} 63$$

⑨

$$9 \xrightarrow{\times 2} 18 \xrightarrow{-4} 14 \xrightarrow{\times 2} 28 \xrightarrow{-4} 24 \xrightarrow{\times 2} 48 \xrightarrow{-4} 44 \#$$

⑩

$$4 \xrightarrow{2 \times 2} 12 \xrightarrow{2 \times 2 \times 3} 68 \xrightarrow{2 \times 2} 630$$

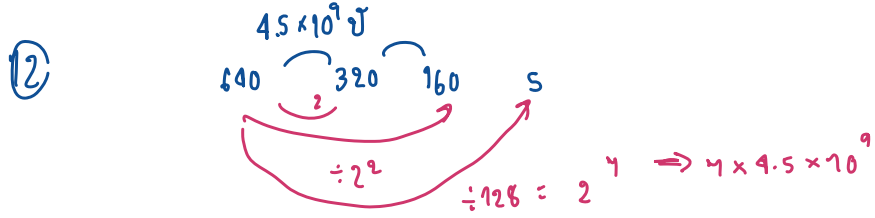
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๗ พ สก ม 11 น

4.5  
4  
31.5



$$5 \overline{) 648} \quad \frac{128}{2} \text{ M4}$$

(13)

$$\frac{1}{2} (60 + 120) \times 92$$

$$S = 980 \times 6$$

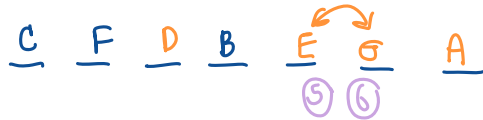
$$\frac{1080}{120}$$

min  $\rightarrow$  max

A \_ \_ B D F

= 9 ml s #

(24)



(26) if 66 | 1 min

out 19 x 4  
46

an 52

ave 17 x 5  
85

(27) 50 x 4

350 mg

$$\frac{20 \text{ mg}}{350 \text{ mg}} = \frac{1 \text{ mL}}{350} = 17.5$$

(30)  $C_1 V_1 = C_2 V_2$

$$(5)(x) = (0.5)(1000)$$

$$x = 100 \text{ mL #}$$