

$$1) \quad 510 = 2(2^n - 1)$$

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

$$256 = 2^n$$

$$\begin{array}{r} 2 \mid 256 \\ 2 \mid 128 \\ 2 \mid 64 \\ 2 \mid 32 \\ 2 \mid 16 \\ 2 \mid 8 \\ 2 \mid 4 \\ 2 \mid 2 \\ \hline 2 = 296 \\ \therefore n = 8 \neq \end{array}$$

$$4) \quad \frac{1111}{1210} = \frac{11^{101} \times 11^2}{1210 \times 11^2}$$

$$= \frac{121(11^{100})}{1210 \times 11^2}$$

$$= \frac{11^{100}}{11^3}$$

$$11^{97} = 1 \dots 1$$

$$\begin{array}{r} 11^2 = 121 \\ 11^3 = 1331 \\ 11^{100} = 1 \dots 1 \\ \therefore 11^{100} \text{ is } 10 \text{ (100 times)} \\ 11^{100} = 100 + 1 \\ \therefore 11^{100} \times 11^2 = 12100 + 121 \\ \therefore 11^{102} = 12221 \neq \end{array}$$

$$5) \quad \frac{(x-5)^2 + (y-5)^2}{25} = 1$$

$$\therefore d = 5, b = 3$$

$$c^2 = a^2 - b^2$$

$$c^2 = 25 - 9$$

$$c = 4$$

$$9) \quad \text{Find the equation of the circle passing through } (3, 1), (3, 1)$$

$$\therefore F(3, 1)$$

$$F(3, 1)$$

$$Slope = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - 1}{3 - 3} = \frac{0}{0}$$

$$\therefore L: 4x - 3y + 15 = 0$$

$$d = \frac{|4(3) - 3(1) + 15|}{\sqrt{16 + 9}} = \frac{14}{5} \neq$$

$$9) \quad 1 - x < -\frac{x}{7} < 7 - x$$

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

$$+\frac{x}{7}$$

$$\frac{7}{7} < \frac{6x}{7} < \frac{49}{7}$$

$$1 < x < 7$$

$$8) \quad n(A) = 200k = 4k$$

$$n(B) = 150k = 8k$$

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

$$(4k - k) + (8k - k) = 120$$

$$10k = 120$$

$$k = 12$$

$$n(A \cup B) = n(A) + n(B) - n(A \cap B)$$

$$= 4k + 8k - k$$

$$= 11k$$

$$= 11(12) = 132 \neq$$

$$10) \quad N_{x+1} = \frac{8}{1+1} = \frac{8}{2} = 4$$

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

$$x = 4$$

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

$$x \log_5 x^2 \cdot x^3 = 25$$

$$x^3 + \log_5 x^2 = 25$$

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

$$109 \times 25 = 5 + \log_5 x^2$$

$$2109 x^5 = 3 + 2 \log_5 x$$

$$\frac{2}{\log_5 x} = 3 + 2 \log_5 x$$

$$x = \sqrt[5]{\frac{1}{25}}$$

$$1) \quad a_1(1 - r^{20}) = \frac{a_1(1 - r^{20})}{1 - r} = \frac{13}{19}$$

$$\frac{a_1(1 - r^{20})}{1 - r} = \frac{13}{19}$$

$$\frac{a_1(1 - r^{20})}{1 - r} = \frac{13}{19}$$

$$\therefore r = -\frac{1}{19} = -\frac{2}{19} \neq$$

$$2) \quad a_1 + a_2 + a_3 + a_4 + \dots + a_n = 13$$

$$a_1 - a_2 + a_3 - a_4 + \dots + a_n = 19$$

$$\therefore S_n = a_1(1 - r^n)$$

$$6) \quad (f \circ g)'(x) = 3x^2 + 1$$

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

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

$$f(g(x)) = 3g(x) + 1$$

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

$$g(x) = 1$$

$$\textcircled{2} = (0)^2 + 0 + c = 3(1) + 1$$

$$\therefore c = 4$$

$$15) \quad 4 + \ln 4 \quad \textcircled{3} \quad x^3 + x + 4 = 3g(x) + 1$$

$$g(x) = \frac{1}{3}(x^3 + x + 4)$$

$$f \circ g(x) dx = \int \frac{1}{3} \left[ \frac{x^3}{3} + \frac{x^0}{2} + 3x \right] dx$$

$$= \frac{1}{9} \left[ \frac{x^4}{4} + \frac{x}{2} + 3x \right] - 0 = \frac{5}{9} \neq$$

12) 44 300 บาท

ซื้อ X บาท  
20  $\frac{50}{100} X$  บาท

จ่าย 15  $\frac{40}{100} (800) = 320$  บาท

$\therefore$  ต้องจ่าย 800 + 320 = 1120 บาท

$X - \frac{50}{100} X = 1120$

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

$50X = 112000$

$\therefore X = 2240$  บาท #

13) จำนวน  $\frac{N+1}{2} = \frac{40+1}{2} = 20,5$

สมมติว่า  $20, 21$

$20 \rightarrow 62$  จำนวน

$21 \rightarrow 60$  จำนวน

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

15)  $21 \times 20 = 420$  ตัว

ซื้อ 10 บาท, 11  $8 \times 7 = 56$  ตัว

$\therefore$  ต้องจ่ายเป็น  $\frac{56}{420} = \frac{2}{15}$  ตัว

16) จำนวน  $\frac{14}{2} = 7$  ตัว

- 6, 16, 26, 36, 46, 56, 60, 62, 64, 66, 68, 76, 86, 96

$\therefore$  ต้องจ่ายเป็น  $\frac{14}{99}$