

- T.1
- ①  $(2x + 3)(3x - 4)$
  - ②  $(x - 2)(8x - 3)$
  - ③  $(7 - 2x)(7 + 2x)$
  - ④  $(4x + 9)^2$
  - ⑤  $(x - 5)(x + 5)(x - 4)$
  - ⑥  $3x^3(2x - 1)(4x + 5)$

T.2 ⑦  $\frac{5 - 3x}{4x + 2}$

⑧  $\frac{4(x-1) \cdot 6 + (x+1)(x-1)}{2(x-1)^4 - 3(4)} \rightarrow \frac{24x - 24 + x^2 - 1}{8x - 8 - 12} \rightarrow \frac{x^2 + 24x - 25}{8x - 20}$

⑨  $\frac{3x(x-2) + x(x)}{4(x-2)} \rightarrow \frac{3x^2 - 6x + x^2}{4(x-2)} \rightarrow \frac{4x^2 - 6x}{4(x-2)}$

$\frac{2x(2x-3)}{4(x-2)}$

⑩  $\frac{2x}{x+5} \cdot \frac{2}{3x+1} \rightarrow \frac{4x}{(x+5)(3x+1)}$

- T.3 ⑪  $(-\infty, -8]$  ⑫  $(-3, \infty)$  ⑬  $[2, 35)$  ⑭  $\cup^{(-\infty, 3)} [1, \infty)$

- T.4 ⑮  $\mathbb{R} (-\infty, \infty)$  ⑯  $[3, \infty)$  ⑰  $(-\infty, 9]$

- ⑱  $(-\infty, -5) \cup (-5, \infty)$  ⑲  $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$

- ⑳  $(-\infty, -2) \cup (-2, 3) \cup (3, \infty)$

- T.5 ㉑ a)  $2 \log x + 3 \log (x-1)$   
 b)  $\frac{1}{2} \log x - 2 \log (3x+2)$   
 c)  $\log x + 4 \log (y+3) - \log y - \log (x-1)$

22. a) 3    b) -2    c)  $\frac{1}{2}$     d) 0    e)  $2^{\log_3 9}$     f)  $10^{\log_{10} 10}$

23. a)  $\log_{10} x^2 + x - 2 = 1$

$10 = x^2 + x - 2$

$0 = x^2 + x - 12$

$(x+4)(x-3)$

$x=3$

b)  $\log_2 3x = \log_2 5x - 10$

$3x = 5x - 10$

$10 = 2x$

$x=5$

c)  $\log_5 \frac{x+1}{x-1} = 2$

$25 = \frac{x+1}{x-1}$

$25(x-1) = x+1$

$24x = 26$

$x = \frac{13}{12}$

d)  $\log_9 x^2 - 2x - 15 = 1$

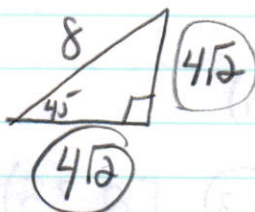
$9 = x^2 - 2x - 15$

$0 = x^2 - 2x - 24$

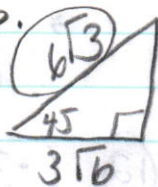
$0 = (x-6)(x+4)$

$x=6$

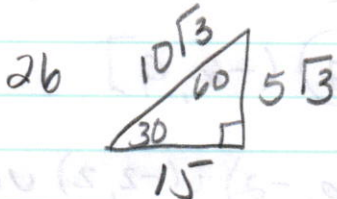
T.6 24.



25.

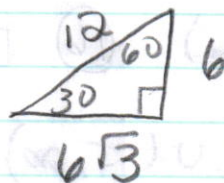


$3\sqrt{6} \cdot \sqrt{2} = 3\sqrt{12} = 6\sqrt{3}$

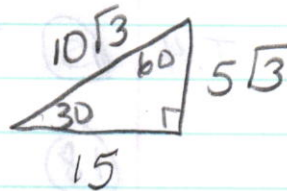


$5\sqrt{3} \cdot \sqrt{3} = 15$

27.



28.



$\frac{15}{\sqrt{3}} \rightarrow \frac{15\sqrt{3}}{3} \rightarrow 5\sqrt{3}$