

13. $\frac{st}{25s^2 - t^2} + \frac{2s^2t}{10s^2t + 2st^2}$

AB $\frac{st}{(5s-t)(5s+t)} + \frac{2s^2t}{2st(5s+t)}$

$\frac{st}{(5s-t)(5s+t)} + \frac{\cancel{2s^2t}}{\cancel{2st}(5s+t)}$

$\frac{st}{(5s-t)(5s+t)} + \frac{s}{(5s+t)}$

CD $(5s-t)(5s+t)$

EF $\frac{st}{(5s-t)(5s+t)} + \frac{s(5s-t)}{(5s+t)(5s-t)}$

M $\frac{st}{c.d.} + \frac{5s^2 - st}{c.d.}$

A/S $\frac{st + 5s^2 - st}{c.d.}$

S $\frac{5s^2}{(5s+t)(5s-t)}$

14. $\frac{x^2 + 5xy - 4y^2}{x^2 - 16y^2} - \frac{2xy}{2x^2 + 8xy}$

① $x^2 + 5xy - 4y^2$

$P = -4$
 $S = 5$
not factorable!

AB $\frac{x^2 + 5xy - 4y^2}{(x-4y)(x+4y)} - \frac{2xy}{2x(x+4y)}$

$\frac{x^2 + 5xy - 4y^2}{(x-4y)(x+4y)} - \frac{\cancel{2xy}}{\cancel{2x}(x+4y)}$

$\frac{x^2 + 5xy - 4y^2}{(x-4y)(x+4y)} - \frac{y}{(x+4y)}$

CD $(x-4y)(x+4y)$

EF $\frac{x^2 + 5xy - 4y^2}{(x-4y)(x+4y)} - \frac{y(x-4y)}{(x+4y)(x-4y)}$

M $\frac{x^2 + 5xy - 4y^2}{c.d.} - \frac{(xy - 4y^2)}{c.d.}$

A/S $\frac{x^2 + 5xy - 4y^2 - xy + 4y^2}{c.d.}$

S $\frac{x^2 + 4xy}{(x+4y)(x-4y)}$

AB $\frac{x(x+4y)}{(x+4y)(x-4y)}$

$\frac{x}{x-4y}$

$$\begin{aligned} &\rightarrow 2(p+q)(p-2q) \\ &= (2p+2q)(p-2q) \\ &= 2p^2 - 2pq - 4q^2 \end{aligned}$$

8

$$15. \frac{2}{2p-5q} - \frac{p}{p^2-pq-2q^2} + \frac{4q}{2p^2-9pq+10q^2}$$

$$\text{[AB]} \frac{2}{(2p-5q)} - \frac{p}{(p+q)(p-2q)} + \frac{4q}{(2p-5q)(p-2q)}$$

$$\text{[CD]} (2p-5q)(p+q)(p-2q)$$

$$\text{[EF]} \frac{2(p+q)(p-2q)}{(2p-5q)(p+q)(p-2q)} - \frac{p(2p-5q)}{(p+q)(p-2q)(2p-5q)} + \frac{4q(p+q)}{(2p-5q)(p-2q)(p+q)}$$

$$\text{[M]} \frac{2p^2 - 2pq - 4q^2}{\text{C.D.}} - \frac{(2p^2 - 5pq)}{\text{C.D.}} + \frac{4pq + 4q^2}{\text{C.D.}}$$

$$\text{[AS]} \frac{2p^2 - 2pq - 4q^2 - 2p^2 + 5pq + 4pq + 4q^2}{\text{C.D.}}$$

$$16. \frac{5}{3v-3} + \frac{3v-1}{1-v^2} + \frac{1}{2v+2}$$

$$\text{[AB]} \frac{5}{3(v-1)} + \frac{3v-1}{(1-v)(1+v)} + \frac{1}{2(v+1)}$$

$$\frac{-5}{3(1-v)} + \frac{3v-1}{(1-v)(1+v)} + \frac{1}{2(1+v)}$$

$$\text{[CD]} 6(1-v)(1+v)$$

$$\text{[EF]} \frac{-5(2)(1+v)}{3(1-v)(2)(1+v)} + \frac{(6)3v-1}{6(1-v)(1+v)} + \frac{1(3)(1-v)}{2(3)(1+v)(1-v)}$$

$$\text{[M]} \frac{-10-10v}{\text{C.D.}} + \frac{18v-6}{\text{C.D.}} + \frac{3-3v}{\text{C.D.}}$$

$$\text{[AS]} \frac{-10-10v+18v-6+3-3v}{\text{C.D.}} = \frac{5v-13}{6(1-v)(1+v)}$$

$$\text{① } p^2 - pq - 2q^2 \quad \text{prod} = -2$$

$$(p^2 - 2pq)(p+q - 2q^2) \quad \text{sum} = -1$$

$$-2, +1$$

$$p(p-2q) + q(p-2q)$$

$$(p+q)(p-2q)$$

$$\text{② } 2p^2 - 9pq + 10q^2 \quad p=20$$

$$(2p^2 - 4pq)(5pq + 10q^2) \quad s=-9$$

$$-4, -5$$

$$2p(p-2q) - 5q(p-2q)$$

$$(2p-5q)(p-2q)$$

$$\text{[5]} \frac{7pq}{(2p-5q)(p+q)(p-2q)}$$

$$\begin{aligned} &\rightarrow -5(2)(1+v) \\ &= -10(1+v) \\ &= -10 - 10v \end{aligned}$$

$$\begin{aligned} &\rightarrow 1(3)(1-v) \\ &= 3(1-v) \\ &= 3 - 3v \end{aligned}$$

17. $\frac{2}{2-3c+c^2} + \frac{2}{2+c-c^2} - \frac{4}{4-4c^2}$

$\stackrel{\textcircled{1}}{=} \frac{2}{c^2-3c+2} + \frac{2}{-c^2+c+2} - \frac{4}{4-4c^2}$

AB $\frac{2}{(c-1)(c-2)} + \frac{2}{(c+1)(-c+2)} - \frac{4}{4(1-c)(1+c)}$

$\frac{2}{(c-1)(c-2)} + \frac{(-1)2}{(c+1)(c-2)} - \frac{(-1)4}{4(c-1)(c+1)}$

$\frac{2}{(c-1)(c-2)} + \frac{-2}{(c+1)(c-2)} - \frac{-1}{(c-1)(c+1)}$

CD $(c-1)(c-2)(c+1)$

EF $\frac{2(c+1)}{(c-1)(c-2)(c+1)} - \frac{2(c-1)}{(c+1)(c-2)(c-1)} + \frac{1(c-2)}{(c-1)(c+1)(c-2)}$

18. $\frac{2}{1-x^2} - \frac{1}{1+x} + 3$

AB $\frac{2}{(1-x)(1+x)} - \frac{1}{1+x} + \frac{3}{1}$

CD $(1-x)(1+x)$

EF $\frac{2}{(1-x)(1+x)} - \frac{1(1-x)}{(1+x)(1-x)} + \frac{3(1-x)(1+x)}{(1+x)(1-x)}$

M $\frac{2}{c.d.} - \frac{(1-x)}{c.d.} + \frac{3-3x^2}{c.d.}$

AS $\frac{2-1+x+3-3x^2}{c.d.}$

S $\frac{-3x^2+x+4}{c.d.}$

AB $\frac{(x+1)(-3x+4)}{(1-x)(1+x)} = \frac{-3x+4}{1-x}$

$\textcircled{1} c^2-3c+2$

$(c^2-2c)(-1c+2)$

$c(c-2)-1(c-2)$

$(c-1)(c-2)$

prod = 2
sum = -3
-2, -1

$\textcircled{2} -c^2+c+2$

$(-c^2+2c)(-1c+2)$

$c(-c+2)+1(-c+2)$

$(c+1)(-c+2)$

prod = -2
sum = +1
+2, -1

$\textcircled{3} 4-4c^2$

$4(1-c^2)$

$4(1-c)(1+c)$

M $\frac{2c+2}{c.d.} - \frac{(2c-2)}{c.d.} + \frac{c-2}{c.d.}$

AS $\frac{2c+2-2c+2+c-2}{c.d.}$

→ → c.d. →

S $\frac{c+2}{(c-1)(c-2)(c+1)}$

→ $3(1-x)(1+x)$
 $= 3(1-x^2)$
 $= 3-3x^2$

→ $-3x^2+x+4$ prod = -12
 $(-3x^2+4x)(-3x+4)$ sum = +1
 $x(-3x+4)+1(-3x+4)$ +4, -3

$(x+1)(-3x+4)$

19. $\frac{x+6y}{x^2+3xy+2y^2} + \frac{2x-4y}{x^2+2xy}$

AB $\frac{x+6y}{(x+2y)(x+y)} + \frac{2(x-2y)}{x(x+2y)}$

CD $(x+2y)(x+y)x$

EF $\frac{x(x+6y)}{x(x+2y)(x+y)} + \frac{2(x-2y)(x+y)}{x(x+2y)(x+y)}$

M $\frac{x^2+6xy}{c.d.} + \frac{2x^2-2xy-4y^2}{c.d.}$

A/S $\frac{1x^2+6xy+2x^2-2xy-4y^2}{c.d.}$

① $x^2+3xy+2y^2$
 $(x^2+1xy)(2xy+2y^2)$
 $x(x+y)+2y(x+y)$
 $(x+2y)(x+y)$

p = 2
 s = 3
 1, 2

$(2x-4y)(x+y)^2$
 $= 2x^2 - 2xy - 4y^2$

S ① $\frac{3x^2+4xy-4y^2}{c.d.}$

prod = -12
 sum = +4
 +6, -2

factor numerator

$(3x^2+6xy)(2xy-4y^2)$
 $3x(x+2y)-2y(x+2y)$
 $(3x-2y)(x+2y)$

AB $\frac{(3x-2y)(x+2y)}{x(x+2y)(x+y)}$

$\frac{(3x-2y)(x+2y)}{x(x+2y)(x+y)} = \frac{3x-2y}{x(x+y)}$

20. $\frac{x^2+y^2}{x^2-y^2} - \frac{2x^2-xy-y^2}{x^2-2xy+y^2}$

① $2x^2-xy-y^2$ p = -2
 $(2x^2-2xy)(1xy-y^2)$ s = -1
 2x(x-y)+y(x-y)
 $(2x+y)(x-y)$

② $x^2-2xy+y^2$ p = +1
 $x^2-1xy-1xy+y^2$ s = -2
 $(x^2-1xy)(-1xy+y^2)$ -1, -1
 $x(x-y)-y(x-y)$
 $(x-y)(x-y)$

AB $\frac{x^2+y^2}{(x-y)(x+y)} - \frac{(2x+y)(x-y)}{(x-y)(x+y)}$

CD $(x-y)(x+y)$

EF $\frac{x^2+y^2}{(x-y)(x+y)} - \frac{(2x+y)(x+y)}{(x-y)(x+y)}$

M $\frac{x^2+y^2}{c.d.} - \frac{(2x^2+3xy+y^2)}{c.d.}$

A/S $\frac{1x^2+y^2-2x^2-3xy-y^2}{c.d.}$

S $\frac{-1x^2-3xy}{c.d.}$

AB $\frac{-x(x+3y)}{(x-y)(x+y)}$ OR $\frac{x(-x-3y)}{(x-y)(x+y)}$

$$21. \frac{9a^2}{a^3} - \frac{3a - a^2}{(a-3)}$$

$$\boxed{AB} \quad \frac{9a^2}{a^3} - \frac{a(3-a)}{(a-3)}$$

$$\frac{9a^2}{a^3} - \frac{a(3-a)}{(a-3)}$$

$$\frac{9}{a} - \frac{-a(a-3)}{(a-3)}$$

$$\frac{9}{a} + \frac{a}{1}$$

$$\boxed{CD} \quad a$$

$$\boxed{EF} \quad \frac{9}{a} + \frac{a \cdot a}{a}$$

$$\boxed{M} \quad \frac{9}{a} + \frac{a^2}{a}$$

$$\boxed{A/S} \quad \frac{9+a^2}{a}$$

$$\boxed{S} \quad \frac{a^2+9}{a}$$

$$22. \frac{1}{2-b} + \frac{b-1}{b^2-3b}$$

$$\boxed{AB} \quad \frac{1}{2-b} + \frac{b-1}{b(b-3)}$$

$$\boxed{CD} \quad b(2-b)(b-3)$$

$$\boxed{EF} \quad \frac{1 \cdot b(b-3)}{b(2-b)(b-3)} + \frac{b-1(2-b)}{b(b-3)(2-b)}$$

$$\boxed{M} \quad \frac{b^2-3b}{c \cdot D.} + \frac{-b^2+3b-2}{c \cdot D.}$$

$$\boxed{A/S} \quad \frac{b^2-3b-b^2+3b-2}{c \cdot D.}$$

$$\boxed{S}$$

$$\frac{-2}{b(2-b)(b-3)}$$

$$23. \textcircled{1} \frac{-x^2 - x + 6}{x^2 + 3x} + \frac{x}{x+2}$$

$$\boxed{AB} \frac{(-x+2)(x+3)}{x(x+3)} + \frac{x}{(x+2)}$$

$$\frac{(-x+2)\cancel{(x+3)}}{x\cancel{(x+3)}} + \frac{x}{(x+2)}$$

$$\frac{-x+2}{x} + \frac{x}{(x+2)}$$

$$\boxed{CD} x(x+2)$$

$$\boxed{EF} \frac{(-x+2)(x+2)}{x(x+2)} + \frac{x \cdot x}{(x+2)x}$$

$$\textcircled{1} -x^2 - x + 6$$

$$(-x^2 - 3x) + (2x + 6)$$

$$-x(x+3) + 2(x+3)$$

$$(-x+2)(x+3)$$

$$\text{prod} = -6$$

$$\text{sum} = -1$$

$$-3, +2$$

$$\rightarrow \boxed{M} \frac{-x^2 + 4}{\text{C.D.}} + \frac{x^2}{\text{C.D.}}$$

$$\boxed{A/S} \frac{-x^2 + 4 + x^2}{\text{C.D.}}$$

$$\boxed{S} \frac{4}{x(x+2)}$$

$$24. \frac{x^2}{2x^2 + x} + \frac{1-x}{2x}$$

$$\boxed{AB} \frac{x^2}{x(2x+1)} + \frac{1-x}{2x}$$

$$\frac{\cancel{x}}{\cancel{x}(2x+1)} + \frac{(1-x)}{2x}$$

$$\frac{x}{(2x+1)} + \frac{(1-x)}{2x}$$

$$\boxed{CD} 2x(2x+1)$$

$$\boxed{EF} \frac{x(2x)}{(2x+1)(2x)} + \frac{(1-x)(2x+1)}{2x(2x+1)}$$

$$\rightarrow \boxed{M} \frac{2x^2}{\text{C.D.}} + \frac{-2x^2 + x + 1}{\text{C.D.}}$$

$$\boxed{A/S} \frac{2x^2 - 2x^2 + x + 1}{\text{C.D.}}$$

$$\boxed{S} \frac{x+1}{2x(2x+1)}$$

$$25. \frac{2}{a+1} - \frac{a+1}{a}$$

AB none

CD $a(a+1)$

EF $\frac{2a}{a(a+1)} - \frac{(a+1)(a+1)}{a(a+1)}$

M $\frac{2a}{\text{c.d.}} - \frac{(a^2+2a+1)}{\text{c.d.}}$

A/S $\frac{2a - a^2 - 2a - 1}{\text{c.d.}}$

S $\frac{-a^2-1}{a(a+1)}$ OR $\frac{-1(a^2+1)}{a(a+1)}$

$$26. \frac{3}{1-x^2} - \frac{1}{2x^2-x-1}$$

AB $\frac{3}{(1-x)(1+x)} - \frac{1}{(2x+1)(x-1)}$

CD $\frac{-3}{(x-1)(1+x)} - \frac{1}{(2x+1)(x-1)}$

EF $(x-1)(1+x)(2x+1)$

M $\frac{-3(2x+1)}{(x-1)(1+x)(2x+1)} - \frac{1(1+x)}{(2x+1)(x-1)(1+x)}$

M $\frac{-6x-3}{\text{c.d.}} - \frac{(1+x)}{\text{c.d.}}$

① $2x^2 - x - 1$ prod = -2
 $(2x^2 - 2x) + (1x - 1)$ sum = -1
 $2x(x-1) + 1(x-1)$ -2, +1
 $(2x+1)(x-1)$

A/S $\frac{-6x-3-1-x}{\text{c.d.}}$

S $\frac{-7x-4}{(x-1)(1+x)(2x+1)}$

$$27. \frac{2xy}{x^2+xy} + \frac{y}{xy}$$

$$\boxed{AB} \quad \frac{2xy}{x(x+y)} + \frac{y}{xy}$$

$$\frac{2xy}{x(x+y)} + \frac{y}{xy}$$

$$\frac{2y}{(x+y)} + \frac{1}{x}$$

$$\boxed{CD} \quad x(x+y)$$

$$\boxed{EF} \quad \frac{2yx}{(x+y)x} + \frac{1(x+y)}{x(x+y)}$$

$$\boxed{M} \quad \frac{2xy}{c.d.} + \frac{x+y}{c.d.}$$

$$\boxed{AIS} \quad \frac{2xy+x+y}{c.d.}$$

$$\boxed{S} \quad \frac{x+y+2xy}{x(x+y)}$$

$$28. \frac{x}{2x-1} - \frac{x+2}{2x}$$

$$\boxed{AB} \quad \frac{x}{2x-1} - \frac{x+2}{2x}$$

$$\boxed{CD} \quad 2x(2x-1)$$

$$\boxed{EF} \quad \frac{x(2x)}{(2x-1)2x} - \frac{(x+2)(2x-1)}{2x(2x-1)}$$

$$\boxed{M} \quad \frac{2x^2}{c.d.} - \frac{(2x^2+3x-2)}{c.d.}$$

$$\boxed{AIS} \quad \frac{2x^2-2x^2-3x+2}{c.d.}$$

$$\boxed{S} \quad \frac{-3x+2}{2x(2x-1)}$$

29. $\frac{2b}{b^2-1} + \frac{b-2}{b^2-b}$

AB $\frac{2b}{(b-1)(b+1)} + \frac{b-2}{b(b-1)}$

CD $b(b-1)(b+1)$

EF $\frac{2b(b)}{(b-1)(b+1)(b)} + \frac{(b-2)(b+1)}{b(b-1)(b+1)}$

M $\frac{2b^2}{c.d.} + \frac{b^2-b-2}{c.d.}$

ANS $\frac{2b^2+b^2-b-2}{c.d.}$

S $\frac{3b^2-b-2}{c.d.}$

① $3b^2-b-2$ $p=-6$
 $(3b^2-3b)+(2b-2)$ $s=-1$
 $3b(b-1)+2(b-1)$ $-3,+2$
 $(3b+2)(b-1)$

AB $\frac{(3b+2)(b-1)}{b(b-1)(b+1)} = \frac{(3b+2)}{b(b+1)}$

30. ① $\frac{t^2-st-6s^2}{-3s^2-2st+t^2} + \frac{-2t+6s}{t-3s}$

AB $\frac{(t-3s)(t+2s)}{(-3st)(s+t)} + \frac{-2(t-3s)}{(t-3s)}$

$\frac{t+2s}{(s+t)} + \frac{-2}{1}$

CD $(s+t)$

EF $\frac{t+2s}{(s+t)} + \frac{-2(s+t)}{(s+t)}$

M $\frac{t+2s}{(s+t)} + \frac{-2s-2t}{(s+t)}$

ANS $\frac{1t+2s-2s-2t}{(s+t)}$

S $\frac{-t}{s+t}$

① $-3s^2-2st+t^2$ $(-3s^2-3st)+(1st+t^2)$
 $p=-3$ $s=-2$ $-3s(s+t)+t(s+t)$
 $-3,+1$ $(-3s+t)(s+t)$

$$31. \frac{3}{v-1} + \frac{3v-2}{v^2-2v+1}$$

$$\boxed{AB} \quad \frac{3}{(v-1)} + \frac{3v-2}{(v-1)(v-1)}$$

$$\boxed{CD} \quad (v-1)^2$$

$$\boxed{EF} \quad \frac{3(v-1)}{(v-1)(v-1)} + \frac{3v-2}{(v-1)(v-1)}$$

$$\boxed{M} \quad \frac{3v-3}{c.d.} + \frac{3v-2}{c.d.}$$

$$\boxed{A/S} \quad \frac{3v-3+3v-2}{c.d.}$$

$$\boxed{S} \quad \frac{6v-5}{(v-1)^2}$$

$$32. \frac{2x}{x^2-3x} - \frac{y}{xy}$$

$$\boxed{AB} \quad \frac{2x}{x(x-3)} - \frac{1y}{xy}$$

$$\frac{2}{(x-3)} - \frac{1}{x}$$

$$\boxed{CD} \quad x(x-3)$$

$$\boxed{EF} \quad \frac{2x}{(x-3)x} - \frac{1(x-3)}{x(x-3)}$$

$$\boxed{M} \quad \frac{2x}{c.d.} - \frac{(x-3)}{c.d.}$$

$$\boxed{A/S} \quad \frac{2x-1x+3}{c.d.}$$

$$\boxed{S} \quad \frac{x+3}{c.d.}$$

$$\boxed{AB}$$

$$\frac{x+3}{x(x-3)}$$

$$33. \frac{x^2 - x - 12}{x^2 - 9} - \frac{xy}{xy + 4y}$$

$$\boxed{AB} \quad \frac{(x-4)(x+3)}{(x-3)(x+3)} - \frac{xy}{y(x+4)} \quad \boxed{CD} \quad (x-3)(x+4)$$

$$\boxed{EF} \quad \frac{(x-4)(x+4)}{(x-3)(x+4)} - \frac{x(x-3)}{(x+4)(x-3)}$$

$$\boxed{M} \quad \frac{x^2 - 16}{c.d.} - \frac{(x^2 - 3x)}{c.d.}$$

$$\boxed{A/S} \quad \frac{x^2 - 16 - x^2 + 3x}{c.d.} \quad \boxed{S} \quad \frac{3x - 16}{(x-3)(x+4)}$$

$$34. \frac{6x}{4x^2 + 4x} - \frac{1}{2x + 4}$$

$$\boxed{AB} \quad \frac{6x}{4x(x+1)} - \frac{1}{2(x+2)}$$

$$\frac{3}{2(x+1)} - \frac{1}{2(x+2)}$$

$$\boxed{CD} \quad 2(x+1)(x+2)$$

$$\boxed{EF} \quad \frac{3(x+2)}{2(x+1)(x+2)} - \frac{1(x+1)}{2(x+2)(x+1)}$$

$$\boxed{M} \quad \frac{3x+6}{c.d.} - \frac{(x+1)}{c.d.}$$

$$\boxed{A/S} \quad \frac{3x+6 - x-1}{c.d.}$$

$$\rightarrow \boxed{S} \quad \frac{2x+5}{2(x+1)(x+2)}$$

$$\textcircled{1} 4 - 4x^2 = 4(1 - x^2) = 4(1-x)(1+x)$$

$$\textcircled{2} -x^2 + x + 2 \quad \begin{matrix} p = -2 \\ s = 1 \\ 2, -1 \end{matrix}$$

$$(-x^2 + 2x)(-1x + 2)$$

$$x(-x + 2) + 1(-x + 2)$$

$$(x+1)(-x+2)$$

$$35. \frac{2}{x^2 - 3x + 2} - \frac{4}{4 - 4x^2} + \frac{2}{-x^2 + x + 2}$$

$$\text{AB} \frac{2}{(x-2)(x-1)} - \frac{4}{4(1-x)(1+x)} + \frac{2}{(x+1)(-x+2)}$$

$$\frac{2(-1)}{(x-2)(-x+1)} - \frac{1}{(1-x)(1+x)} + \frac{(-1)(2)}{(x+1)(x-2)}$$

$$\text{CD} (x-2)(1-x)(1+x)$$

$$\text{EF} \frac{-2(1+x)}{(x-2)(1-x)(1+x)} - \frac{1(x-2)}{(1-x)(1+x)(x-2)} + \frac{-2(1-x)}{(x+1)(x-2)(1-x)}$$

$$\text{M} \frac{-2-2x}{\text{CD}} - \frac{(x-2)}{\text{C.D.}} + \frac{-2+2x}{\text{C.D.}}$$

$$\text{AB} \frac{-x-2}{(x+1)(x-2)(1-x)}$$

$$\text{A/S} \frac{-2 - 2x - x + 2 - 2 + 2x}{\text{C.D.}}$$

$$\text{S} \frac{-x-2}{\text{C.D.}}$$

$$36. \frac{2}{2-3b+b^2} + \frac{3}{2+b-b^2} - \frac{4}{4-4b^2}$$

$$\text{AB} = \frac{2}{b^2-3b+2} + \frac{3}{-b^2+b+2} - \frac{4}{4-4b^2}$$

$$= \frac{2}{(b-2)(b-1)} + \frac{3}{(-b-1)(b-2)} - \frac{4}{4(1-b)(1+b)}$$

$$\textcircled{1} -b^2 + b + 2 \quad \begin{matrix} p = -2 \\ s = +1 \\ 2, -1 \end{matrix}$$

$$(-b^2 + 2b)(-1b + 2)$$

$$-b(b-2) - 1(b-2)$$

$$(-b-1)(b-2)$$

$$\textcircled{2} 4 - 4b^2 = 4(1-b^2) = 4(1-b)(1+b)$$

$$= \frac{2}{(b-2)(b-1)} + \frac{(-1)(3)}{(b+1)(b-2)} - \frac{-1}{(-1+b)(1+b)}$$

$$\text{CD} (b-2)(b-1)(b+1)$$

$$\text{EF} \frac{2(b+1)}{(b-2)(b-1)(b+1)} + \frac{-3(b-1)}{(b+1)(b-2)(b-1)} - \frac{-1(b-2)}{(b-1)(1+b)(b-2)}$$

$$\text{M} \frac{2b+2}{\text{C.D.}} + \frac{-3b+3}{\text{C.D.}} - \frac{(-b+2)}{\text{C.D.}}$$

$$\text{AS} \frac{2b+2-3b+3+b-2}{\text{C.D.}}$$

$$\text{S} \frac{3}{(b-2)(b-1)(b+1)}$$

37. ① $\frac{a+2}{2a^2+5a+2} - \frac{2a-1}{a^2+6a+9} - \frac{a+3}{2a^2+7a+3}$

AB $\frac{(a+2)}{(2a+1)(a+2)} - \frac{(2a-1)}{(a+3)(a+3)} - \frac{(a+3)}{(2a+1)(a+3)}$ ← leave

CD $(2a+1)(a+3)^2$

EF $\frac{(a+2)(a+3)^2}{(2a+1)(a+3)^2} - \frac{(2a-1)(2a+1)}{(a+3)^2(2a+1)} - \frac{(a+3)(a+3)}{(2a+1)(a+3)(a+3)}$

M $\frac{a^2+6a+9}{c.d.} - \frac{(4a^2-1)}{c.d.} - \frac{(a^2+6a+9)}{c.d.}$

AS $\frac{a^2+6a+9 - 4a^2+1 - a^2-6a-9}{c.d.}$

S $\frac{-4a^2+1}{c.d.} = \frac{1-4a^2}{c.d.} = \frac{(1-2a)(1+2a)}{c.d.} = \frac{(1-2a)(1+2a)}{(2a+1)(a+3)^2} = \frac{1-2a}{(a+3)^2}$

① $2a^2+5a+2$ p=4 s=5 4,1
 $(2a^2+4a)(a+2)$
 $2a(a+2)+1(a+2)$
 $(2a+1)(a+2)$

② $2a^2+7a+3$ p=6 s=7 6,1
 $(2a^2+6a)(a+3)$
 $2a(a+3)+1(a+3)$
 $(2a+1)(a+3)$

i'm leaving the (a+b) in it's in c.d. anyway.

38. ① $\frac{3a+3b}{3a^2+6ab+3b^2}$ ② $\frac{a+b}{5a^2-5b^2} + \frac{1}{a+b}$

AB $\frac{3(a+b)}{3(a+b)(a+b)} - \frac{(a+b)}{5(a-b)(a+b)} + \frac{1}{(a+b)}$

CD $5(a+b)(a-b)$

EF $\frac{5(a-b)}{(a+b)(5)(a-b)} - \frac{(a+b)}{5(a-b)(a+b)} + \frac{1(5)(a-b)}{(a+b)(a-b)5}$

M $\frac{5a-5b}{c.d.} - \frac{(a+b)}{c.d.} + \frac{5a-5b}{c.d.}$

AS $\frac{5a-5b - a - b + 5a - 5b}{c.d.}$

S $\frac{9a-11b}{5(a-b)(a+b)}$

① $3a^2+6ab+3b^2$
 $3(a^2+2ab+b^2)$
 $3(a+b)(a+b)$

② $5a^2-5b^2$
 $5(a^2-b^2)$
 $5(a-b)(a+b)$

$$39. \frac{3x-3y}{x^2+xy-2y^2} - \frac{x-y}{x^2+3xy+2y^2} + \frac{-2x+2y}{x^2-y^2}$$

$$\boxed{AB} \quad \frac{3(x-y)}{(x+2y)(x-y)} - \frac{(x-y)}{(x+2y)(x+y)} + \frac{-2(x-y)}{(x-y)(x+y)} \quad \boxed{CD} \quad (x+2y)(x+y)$$

$$\boxed{EF} \quad \frac{3(x+y)}{(x+2y)(x+y)} - \frac{(x-y)}{(x+2y)(x+y)} + \frac{-2(x+2y)}{(x+y)(x+2y)}$$

$$\boxed{M} \quad \frac{3x+3y}{C.D.} - \frac{(x-y)}{C.D.} + \frac{-2x-4y}{C.D.}$$

$$\boxed{A/S} \quad \frac{3x+3y-x+y-2x-4y}{C.D.}$$

$$\boxed{S} \quad \frac{0}{C.D.} = \boxed{0}$$

$$40. \frac{(b^2-1)}{b^2+2b-3} - \frac{(a^2-4)}{(a+2)^2}$$

$$\boxed{AB} \quad \frac{(b-1)(b+1)}{(b+3)(b-1)} - \frac{(a-2)(a+2)}{(a+2)(a+2)}$$

$$= \frac{(b+1)}{(b+3)} - \frac{(a-2)}{(a+2)}$$

$$\boxed{CD} \quad (b+3)(a+2)$$

$$\boxed{EF} \quad \frac{(b+1)(a+2)}{(b+3)(a+2)} - \frac{(a-2)(b+3)}{(a+2)(b+3)}$$

$$\boxed{M} \quad \frac{ab+2b+a+2}{CD} - \frac{(ab+3a-2b-6)}{CD}$$

$\boxed{A/S}$

$$\frac{ab+2b+a+2-ab-3a+2b+6}{C.D.}$$

$$\boxed{S} \quad \frac{4b-2a+8}{C.D.}$$

$$\boxed{AB} \quad \frac{2(2b-a+4)}{(b+3)(a+2)}$$

