1. $\dfrac{3x^2y^2 - 3xy^3}{6x^3y - 6x^2y^2} = \dfrac{3xy^2 \cdot (x-y)}{6x^2y(x-y)}$

$= \dfrac{\cancel{3}xy^2}{\underset{2}{\cancel{6}}\,x^2y} = \dfrac{y}{2x}$

CEVAP: A

4. $\dfrac{x^2-9}{(x+3)^2} : \dfrac{x-3}{x^2+3x} = \dfrac{(x-3).(x+3)}{(x+3).(x+3)} : \dfrac{x-3}{x.(x+3)}$

$= \dfrac{(\cancel{x-3}).(\cancel{x+3})}{(\cancel{x+3}).(\cancel{x+3})} \cdot \dfrac{x.(\cancel{x+3})}{\cancel{x-3}}$

$= x$

CEVAP: A

2. $\dfrac{\dfrac{x^2-x-20}{x^2+2x-8} : \dfrac{x+1}{x^2+5x}}{\dfrac{x^2-25}{x^2-x-2}}$

$= \dfrac{\dfrac{(\cancel{x-5})\,(\cancel{x+4})}{(\cancel{x+4})\,(\cancel{x-2})} \cdot \dfrac{x\,(\cancel{x+5})}{\cancel{x+1}}}{\dfrac{(\cancel{x-5})\,(\cancel{x+5})}{(\cancel{x-2})\,(\cancel{x+1})}} = x$

CEVAP: C

5. $\dfrac{x^2-1}{x^2-2x-3} : \dfrac{1}{x-3} = \dfrac{(x-1).(\cancel{x+1})}{(\cancel{x-3}).(\cancel{x+1})}.(\cancel{x-3})$

$= x - 1$

CEVAP: A

3. $\dfrac{\dfrac{1}{a+1} - \dfrac{1}{a-1}}{\dfrac{1}{a+1} + \dfrac{1}{a-1}} = \dfrac{\dfrac{\cancel{a}-1-\cancel{a}-1}{(\cancel{a}+1)(\cancel{a}-1)}}{\dfrac{\cancel{a}-1+\cancel{a}+1}{(\cancel{a}+1)(\cancel{a}-1)}}$

$= \dfrac{-\cancel{2}}{\cancel{2}a}$

$= -\dfrac{1}{a}$

CEVAP: E

6. $\dfrac{a^2-bc-b^2-ac}{a+b} + b + c = \dfrac{a^2-b^2-bc-ac}{a+b} + b + c$

$= \dfrac{(a-b)(a+b) - c(a+b)}{a+b} + b + c$

$= \dfrac{(\cancel{a+b}).(a-b-c)}{\cancel{a+b}} + b + c$

$= a - \cancel{b} - \cancel{c} + \cancel{b} + \cancel{c}$

$= a$

CEVAP: A

7. $\dfrac{\dfrac{x^3+1}{\dfrac{1}{x}\underset{(x)}{-}\dfrac{1}{x^2}-\dfrac{1}{x^2}}}{\underset{(x^2)}{}} : \dfrac{x^2}{x+1}$

$= \dfrac{(x+1)(x^2-x+1)}{\dfrac{x-1-x^2}{x^2}} \cdot \dfrac{x+1}{x^2}$

$= \dfrac{(x+1)(x^2-x+1)}{\dfrac{-x^2+x-1}{x^2}} \cdot \dfrac{x+1}{x^2}$

$= \dfrac{x^2 \cdot (x+1) \cdot (x^2-x+1) \cdot (x+1)}{-(x^2-x+1) \cdot x^2}$

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

CEVAP: C

8. $\dfrac{a^3b-b}{a^2-1} : \dfrac{a^2b+a\cdot b+b}{a^2+a}$

$= \dfrac{b(a^3-1)}{(a-1)(a+1)} : \dfrac{b(a^2+a+1)}{a(a+1)}$

$= \dfrac{b\,(a-1)\,(a^2+a+1)}{(a-1)\,(a+1)} \cdot \dfrac{a\cdot(a+1)}{b\,(a^2+a+1)}$

$= a$

CEVAP: A

9. $\dfrac{x^3-1}{x-1} : \dfrac{x^3+x^2+x}{x^2}$

$= \dfrac{(x-1)\,(x^2+x+1)}{x-1} \cdot \dfrac{x^2}{x\,(x^2+x+1)}$

$= \dfrac{x^2}{x} = x$

CEVAP: E

10. $\dfrac{x+1-\dfrac{3}{x-1}}{x+2-\dfrac{4}{x-1}} = \dfrac{\dfrac{(x-1)\cdot(x+1)-3}{x-1}}{\dfrac{(x+2)\cdot(x-1)-4}{x-1}}$

$= \dfrac{\dfrac{x^2-1-3}{x-1}}{\dfrac{x^2+x-2-4}{x-1}}$

$= \dfrac{\dfrac{x^2-4}{x-1}}{\dfrac{x^2+x-6}{x-1}}$

$= \dfrac{\dfrac{(x-2)\cdot(x+2)}{x-1}}{\dfrac{(x+3)(x-2)}{x-1}}$

$= \dfrac{(x-2)\cdot(x+2)}{x-1} \cdot \dfrac{x-1}{(x+3)\cdot(x-2)}$

$= \dfrac{x+2}{x+3}$

CEVAP: C

11.

$$\dfrac{\dfrac{x^2}{4} - \dfrac{1}{9}}{\dfrac{x}{2} + \dfrac{1}{3}} = \dfrac{1}{9}$$

$$\dfrac{\left(\dfrac{x}{2}\right)^2 - \left(\dfrac{1}{3}\right)^2}{\dfrac{x}{2} + \dfrac{1}{3}} = \dfrac{1}{9}$$

$$\dfrac{\left(\dfrac{x}{2} - \dfrac{1}{3}\right)\left(\dfrac{x}{2} + \dfrac{1}{3}\right)}{\dfrac{x}{2} + \dfrac{1}{3}} = \dfrac{1}{9}$$

$$\dfrac{x}{2} - \dfrac{1}{3} = \dfrac{1}{9} \quad \text{ise} \quad \dfrac{x}{2} = \dfrac{1}{9} + \dfrac{1}{3}$$
$$\underset{(3)}{}$$

$$\dfrac{x}{2} = \dfrac{4}{9} \quad \text{buradan} \quad x = \dfrac{8}{9} \text{ dur.}$$

CEVAP: C

12. $\left[\dfrac{a^2 + ab + b^2}{4a^2 - 1}\right]^{-1} \cdot \dfrac{a^3 - b^3}{4a^2 - 4a + 1} : (a - b)$

$$= \dfrac{(2a)^2 - 1^2}{a^2 + ab + b^2} \cdot \dfrac{(a - b)(a^2 + ab + b^2)}{(2a - 1)^2} \cdot \dfrac{1}{a - b}$$

$$= \dfrac{(2a - 1)(2a + 1)}{(2a - 1)^2} = \dfrac{2a + 1}{2a - 1}$$

CEVAP: C

13. $\dfrac{5x^3y - 40x^2y + 80xy}{4x^3y - 64xy}$

$$= \dfrac{5xy(x^2 - 8x + 16)}{4xy(x^2 - 16)}$$

$$= \dfrac{5 \cdot (x - 4)^2}{4 \cdot (x^2 - 4^2)} = \dfrac{5 \cdot (x - 4)(x - 4)}{4(x - 4)(x + 4)}$$

$$= \dfrac{5 \cdot (x - 4)}{4(x + 4)}$$

CEVAP: C

14. $\left(\dfrac{x^3 + 1}{x + 1} : \dfrac{x^2 - x + 1}{x - 1}\right) \cdot \dfrac{1}{x - 1}$

$$= \dfrac{(x + 1) \cdot (x^2 - x + 1)}{x + 1} \cdot \dfrac{x - 1}{x^2 - x + 1} \cdot \dfrac{1}{x - 1}$$

$$= 1$$

CEVAP: E

15.

$$\dfrac{x - \dfrac{4}{x} + 3}{x + \dfrac{8}{x} + 6} : \dfrac{x - 1}{x^2 - 4} = \dfrac{\dfrac{x^2 - 4 + 3x}{x}}{\dfrac{x^2 + 8 + 6x}{x}} : \dfrac{x - 1}{(x - 2) \cdot (x + 2)}$$

$$= \dfrac{\dfrac{x^2 + 3x - 4}{x}}{\dfrac{x^2 + 6x + 8}{x}} \cdot \dfrac{(x - 2)(x + 2)}{x - 1}$$

$$= \dfrac{(x + 4) \cdot (x - 1)}{x} \cdot \dfrac{x}{(x + 2)(x + 4)} \cdot \dfrac{(x + 2)(x - 2)}{x - 1}$$

$$= x - 2$$

CEVAP: D

16. $4x^2 + 20x + k$ ifadesi bir tam kare ise

$4x^2 + 20x + k = (2x + 5)^2$

$4x^2 + 20x + k = 4x^2 + 20x + 25$

$k = 25$

CEVAP: E

17. $\dfrac{x-5}{x^2-4x+3} = \dfrac{M}{\underset{(x-1)}{x-3}} + \dfrac{N}{\underset{(x-3)}{x-1}}$

$\dfrac{x-5}{x^2 \cancel{-4x+3}} = \dfrac{Mx - M + Nx - 3N}{x^2 \cancel{-4x+3}}$

$x - 5 = Mx + Nx - M - 3N$

$x - 5 = (M+N).x - M - 3N$

$\begin{aligned} \cancel{M}+N &= 1 \\ + \quad -\cancel{M} - 3N &= -5 \\ \hline -2N &= -4 \end{aligned}$

$N = 2$ ve $M = -1$

$M - N = -1 - 2$

$\qquad = -3$

CEVAP: C

18. $\dfrac{x^2 + ax + 6}{x-1}$ ifadesi sedeleşebiliyor ise $x^2 + ax + 6$ ifadesinin çarpanlarından biri $x - 1$ dir.

$x - 1 = 0 \Rightarrow x = 1$ için

$x^2 + ax + 6 = 0$ olmalıdır.

$1^2 + a \cdot 1 + 6 = 0$

$\qquad 7 + a = 0$

$\qquad a = -7$

CEVAP: B

19. $\dfrac{x^2 + ax - 8}{x^2 - 3x + 2} = \dfrac{x^2 + ax - 8}{(x-2) \cdot (x-1)}$

ifadesi sadeleşebiliyor ise $x^2 + ax - 8$ ifadesinin çarpanlarından biri $x - 2$ veya $x - 1$ olmalıdır.

$x - 2 = 0 \Rightarrow x = 2 \qquad x - 1 = 0 \Rightarrow x = 1$

için $x^2 + ax - 8 = 0 \qquad$ için $x^2 + ax - 8 = 0$

olmalıdır. $\qquad\qquad\qquad$ olmalıdır.

$2^2 + a \cdot 2 - 8 = 0 \qquad\quad 1^2 + a \cdot 1 - 8 = 0$

$\qquad\quad 2a = 4 \qquad\qquad\qquad a - 7 = 0$

$\qquad\quad a = 2 \qquad\qquad\qquad\quad a = 7$

a'nın alabileceği değerler toplamı

$2 + 7 = 9$

CEVAP: D

20. $\dfrac{x^2 + ax + b}{x^2 - 4x + 3}$ ifadesinin sadeleştirilmiş biçimi $\dfrac{x+4}{x-1}$ olduğuna göre,

$\dfrac{x^2 + ax + b}{x^2 - 4x + 3} = \dfrac{x+4}{x-1}$ olmalıdır.

$\dfrac{x^2 + ax + b}{(x-3)(\cancel{x-1})} = \dfrac{x+4}{\cancel{x-1}}$

$x^2 + ax + b = (x-3) \cdot (x+4)$

$x^2 + ax + b = x^2 + x - 12$

$a = 1$ ve $b = -12$

$a + b = 1 - 12$

$\qquad = -11$

CEVAP: A