

Problem	Solution
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1.  $x^2y^2 + 2xy + 1$

2.  $m^2 - 2mp + p^2$

3.  $x^2 - y^2$

4.  $8x^3 - 27y^3$

5.  $8x^3 + 27y^3$

6.  $m^2 + 2mn + n^2 + 2(m + n) + 1$

7.  $(x + 2)^2 + 2(x + 2) + 1$

8.  $n^2(2m - 1) - 2n(2m - 1) + (2m - 1)$

9.  $x^4 + x^2y^4 + y^8$

10.  $a^{16} - b^{16}$

11.  $x - 4\sqrt{x} - 5$

12.  $e^{2x} - e^x - 6$

13.  $5x^2 + 10xy + 5y^2 + 20(x + y) - 105$

14.  $x^3y^3 + 8$

15.  $x^{3n} + y^{3n}$

16.  $x^{2n} - x^n - 2$

17.  $12x^2 + 2xy - 30y^2$

18. 
$$\frac{1 - \frac{1}{x}}{\left(1 + \frac{1}{x}\right)^2}$$

19. 
$$\frac{\frac{2}{x+3} + \frac{5x}{x^2-9}}{\frac{4}{x+3} + \frac{2}{x-3}}$$

20. 
$$\frac{3a^2b - 9ab^2}{a^3 - 7a^2b + 12ab^2}$$

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$$21. \frac{(5x-7)^2}{50x^2-98}$$

$$22. \frac{x^2+(a+b)x+ab}{x^2+(a+c)x+ac}$$

$$23. \frac{x^4-2x^2y^2+y^4}{x^2+2xy+y^2}$$

$$24. \frac{3x}{4y-4x} + \frac{x^2+5xy}{4x^2-4y^2} - \frac{2x^2+xy}{2xy+2y^2}$$

$$25. \frac{\frac{x}{x-2}+1}{\frac{3}{x^2-4}+1}$$

$$26. \sqrt{1+\left(2x-\frac{1}{8x}\right)^2}$$

$$27. \frac{x+1}{x^2+x+1} + \frac{x-1}{x^2-x+1} + \frac{2}{x^4+x^2+1}$$

$$28. \frac{\frac{6}{x^2+2x-15} - \frac{1}{x-3}}{\frac{1}{x+5}+1}$$

$$29. \frac{x-4}{2x-1} - \frac{3x-5}{x+2} + \frac{5x^2+9x+14}{2x^2+3x-2}$$

$$30. \frac{\sqrt{x} - \frac{1}{3\sqrt{x}}}{\sqrt{x}}$$

$$31. \frac{\frac{x^2+xy+y^2}{\frac{2}{3}x+y}}{4x^2-9y^2}$$

$$32. e^x(x^2+1)+2xe^x$$

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$$33. \frac{e^x(x^2+1) - 2xe^x}{(x^2+1)^2}$$

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