Simplify the radical expressions

1. $\dfrac{4}{\sqrt{3}}$

2. $\sqrt{\dfrac{8}{5}}$

3. $\sqrt[3]{\dfrac{5}{2}}$

4. $\sqrt{4x^2 y}$

5. $\sqrt[3]{81x^4 y^5}$

6. $\dfrac{3 - \sqrt{2}}{1 + 3\sqrt{5}}$

7. $\dfrac{x - 3}{x - \sqrt{3}}$

Expand and simplify

8. $(3x - 2)(5x + 7)$

9. $(1 - x^{-1})(2 + 5x)$

10. $1 + (x^3 - x^{-3})^2$

11. $(3x - 2)^3$

Simplify the expressions

12. $\dfrac{8x^3 + 5x^2 - 3x^{-1}}{4x}$

13. $\dfrac{x^2 - 5x + 6}{x - 3}$

14. $\dfrac{5(x-2)^2 - 4x(x-2)}{(x-2)^3}$

15. $\left(3x^2 y^{-1}\right)^4$

16. $\left(2x^{-3} y^2\right)^{-2} \left(5xy^{-3}\right)^3$

17. $\dfrac{8x^{1/3} y^{9/5}}{3x^{4/3} y^{2/5}}$

18. $\dfrac{4t^{9/4} s^{3/5}}{5t^{1/3} s^{-1/4}}$

Evaluate and simplify

19. $\dfrac{5 \pm \sqrt{(-5)^2 - 4(3)(-2)}}{2(3)}$

20. $2x^2 (3x - 1)\sqrt{5x - 1}\,\Big|_{x=2}$

Factor completely

21. $10x^3 - 13x^2 - 3x$

22. $10x^3 - 13x^2 + 3x$

23. $4x^{7/3} - 2x^{4/3} - 12x^{1/3}$

24. $3x^4 - 5x^3 - 12x^2 + 20x$

25. $8x^3 - 27$

Use the table to evaluate the expression

x	-2	-1	0	1	2
$f(x)$	3	2	-1	2	0
$g(x)$	2	1	5	-2	-1

26. $(f+g)(-2)$

27. $(fg)(0)$

28. $f\left[g(1)\right]$

29. $(g \circ f)(1)$

30. $f^2(5x-2)\big|_{x=0}$

31. $x^2 f(3x+2)g(1-x)\big|_{x=-1}$

Find all real solutions

32. $(x-2)^2(3x-1)^3(5x^2-9)(x^2+4)=0$

33. $(x+3)^{1/2}(3x+1)^{-2}(x+7)^3(5x-3)^{1/3}=0$