Name_____ Date_____

Algebra 2 7.1 - 7.2 Practice

Find each real-number root.

1. $\sqrt{144}$
2. $-\sqrt{25}$
3. $\sqrt{-0.01}$
4. $\sqrt[3]{0.001}$
5. $\sqrt[4]{0.0081}$
6. $\sqrt[3]{27}$
7. $\sqrt[3]{-27}$
8. $\sqrt{0.09}$

Simplify each radical expression.

9. $\sqrt{81x^4}$
10. $\sqrt{121y^{10}}$
11. $\sqrt[3]{8g^6}$
12. $\sqrt[3]{125x^9}$
13. $\sqrt[5]{243x^5y^{15}}$
14. $\sqrt[3]{(x-9)^3}$
15. $\sqrt{25(x+2)^4}$
16. $\sqrt[3]{\frac{64x^9}{343}}$

Multiply and simplify. Assume that all variables are positive.

17. $\sqrt{4}\cdot\sqrt{6}$
18. $\sqrt{9x^2}\cdot\sqrt{9y^5}$
19. $\sqrt[3]{50x^2z^5}\cdot\sqrt[3]{15y^3z}$
20. $4\sqrt{2x}\cdot 3\sqrt{8x}$
21. $\sqrt{xy}\cdot\sqrt{4xy}$
22. $9\sqrt{2}\cdot 3\sqrt{y}$

Multiply. Simplify if possible. Assume that all variables are positive.

23. $\sqrt{4}\cdot\sqrt{25}$
24. $\sqrt{81}\cdot\sqrt{36}$
25. $\sqrt{3}\cdot\sqrt{27}$
26. $\sqrt[3]{-3}\cdot\sqrt[3]{9}$
27. $\sqrt{3x}\cdot\sqrt{6x^3}$
28. $\sqrt[3]{2xy^2}\cdot\sqrt[3]{4x^2y^7}$

Simplify. Assume that all variables are positive.

29. $\sqrt{36x^3}$
30. $\sqrt[3]{125y^2z^4}$
31. $\sqrt{18k^6}$
32. $\sqrt[3]{-16a^{12}}$
33. $\sqrt{x^2y^{10}z}$
34. $\sqrt[4]{256s^7t^{12}}$
35. $\sqrt[3]{216x^4y^3}$
36. $\sqrt{75r^3}$
37. $\sqrt[4]{625u^5v^8}$

Divide and simplify. Assume that all variables are positive.

38. $\frac{\sqrt{6x}}{\sqrt{3x}}$
39. $\frac{\sqrt[3]{4x^2}}{\sqrt[3]{x}}$
40. $\sqrt[4]{\frac{243k^3}{3k^7}}$

How Did the Absent-Minded Professor Burn His Ear?

Simplify the expression. Write the letter of the exercise in the box that contains the number of the answer.

E $n^2 \cdot n^5$

N $(n^2)^5$

H $(n^{-2})^5$

A $(n^9)^4 n^3$

O $(n^2)(n^3)^{-2}$

I $(n^4)^{-3}(n^4)^{-1}$

E $(n^{10})^{10}(n^{-8})^3$

Answers • Part 1

29 n^{76}	31 n^{42}
20 n^{81}	18 n^7
33 n^{10}	5 n^{39}
27 $\frac{1}{n^4}$	8 $\frac{1}{n^{16}}$
4 $\frac{1}{n^{12}}$	22 $\frac{1}{n^{10}}$

N $(7d)^2$

H $(4d^2)^3$

S $(-4d^2)^3$

A $(4d^2)^{-3}$

O $(-5d)^2(d^3)^2$

E $8(d^2)^2(-2d)^3$

H $(3d^5)^{-4}(d^{-1})^9$

Answers • Part 2

23 $-64d^7$	17 $64d^6$
6 $-64d^6$	30 $25d^{10}$
13 $49d^2$	10 $25d^8$
9 $\frac{1}{81d^{18}}$	1 $\frac{1}{81d^{29}}$
32 $\frac{1}{64d^6}$	12 $\frac{64}{d^9}$

I $(x^5y^4)^2$

N $(10xy^2)^3(x^2)$

H $(-x^3y^8)^3$

E $(x^2y)^5(x^2y^5)$

G $(9x^3y^4)^2(xy)^{-6}$

T $(3x^{-2})^4(x^2y^4)^3$

W $(-5y^{-5})^3(-x^4y)^2$

Answers • Part 3

14 $81y^2$	3 $1000x^6y^2$
12 $x^{10}y^8$	26 $-x^9y^{24}$
2 $x^{12}y^{10}$	19 $1000x^5y^6$
16 $\frac{81y^7}{x^4}$	4 $-\frac{125x^8}{y^{13}}$
21 $\frac{81y^{12}}{x^2}$	25 $-\frac{125x^9}{y^{12}}$

N $(-6m^7t^4)^2$

R $(3m^2t)^2(3m^2t^2)$

W $(-2mt)^3(-2mt^3)$

G $-m^5t^2(15mt^5)^2$

N $(4mt^{-3})^2(-4m^{-3}t)^2$

P $(5mt)^2 + 5m^2t^2$

R $(mt^4)^{-1}(mt^4)$

Answers • Part 4

25 $30m^2t^2$	34 $-225m^7t^{12}$
16 $16m^4t^6$	24 $-225m^6t^{10}$
9 1	11 $36m^{14}t^8$
31 $27m^6t^4$	7 $27m^5t^6$
15 $\frac{256m^2}{t^3}$	28 $\frac{256}{m^4t^4}$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34