Question	Solution
1.	In the expression $\sqrt[4]{10{,}000}$, the number 4 is called the *index of the radical.*
3.	C; $2^{1/3} = \sqrt[3]{2}$
5.	D; $2^{2/3} = (\sqrt[3]{2})^2$
7.	$\sqrt[3]{12} = 12^{1/3}$
9.	$\sqrt{x^5} = x^{5/2}$
11.	$5^{1/4} = \sqrt[4]{5}$
13.	$(2t)^{1/3} = \sqrt[3]{2t}$
15.	Because $n = 2$ is even and $a = 64 > 0$, 64 has two real square roots. Because $8^2 = 64$ and $(-8)^2 = 64$, you can write $\pm\sqrt{64} = \pm 8$ or $\pm 64^{1/2} = \pm 8$.
17.	Because $n = 4$ is even and $a = 0$, 0 has one real fourth root. Because $0^4 = 0$, you can write $\sqrt[4]{0} = 0$.
19.	Because n = 4 is even and a = -16 < 0, -16 has no real fourth roots.
21.	$\sqrt[6]{64} = 2$
23.	$16^{3/2} = (16^{1/2})^3$ $= 4^3 = 64$
25.	272/3 = (271/3)2 = 32 = 9
27.	$(\sqrt[3]{8})^{-2} = \frac{1}{(\sqrt[3]{8})^2} = \frac{1}{2^2} = \frac{1}{4}$
29.	$(\sqrt[4]{16})^{-7} = \frac{1}{(\sqrt[4]{16})^7} = \frac{1}{2^7} = \frac{1}{128}$
31.	$64^{-2/3} = \frac{1}{64^{2/3}} = \frac{1}{(64^{1/3})^2} = \frac{1}{4^2} = \frac{1}{16}$
33.	C; 1285/7 = (1281/7)5 = 25 = 32
35.	$\sqrt[7]{1695} \approx 2.89$
37.	851/6 ≈ 2.10
39.	20,7361/4 = 12
41.	$(\sqrt{6})^{-5} \approx 0.01$
43.	86-5/6 ≈ 0.02

45.	$\frac{1}{(-17)^{3/5}} = (-17)^{-3/5} \approx -0.18$
47.	List the fourth powers of positive integers until you exceed 125: $1^4 = 1$ $2^4 = 16$ $3^4 = 81$ $4^4 = 256$ Since 125 is between $81 = 3^4$ and $256 = 4^4$, $\sqrt[4]{125}$ is between $\sqrt[4]{81} = 3$ and $\sqrt[4]{256} = 4$.
49.	The negative fourth root of 81 was not included. $x^4 = 81$ $x = \pm\sqrt[4]{81}$ $x = \pm 3$
51.	$5x^3 = 1080$ $x^3 = 216$ $x = \sqrt[3]{216}$ $x = 6$
53.	$(x - 5)^4 = 256$ $x - 5 = \pm\sqrt[4]{256}$ $x = \pm\sqrt[4]{256} + 5$ $x = 4 + 5$ or $x = -4 + 5$ $x = 9$ or $x = 1$
55.	$7x^4 = 56$ $x^4 = 8$ $x = \pm\sqrt[4]{8}$ $x \approx \pm 1.68$
57.	$(x + 10)^5 = 70$ $x + 10 = \sqrt[5]{70}$ $x = \sqrt[5]{70} - 10$ $x \approx -7.66$