4.1 Review of Powers and Roots Solutions

Evaluate the expressions.

1. $3^3 = 3 \cdot 3 \cdot 3 = \boxed{27}$

2. 5^4

3. $\left(\frac{1}{2}\right)^3 = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \boxed{\frac{1}{8}}$

4. $\left(\frac{2}{5}\right)^3$

5. $(1.2)^2 = (1.2)(1.2)$

$= \boxed{1.44}$

1.2
$\underline{1.2}$
24
$\underline{12}$
1.44

6. $(8.2)^2$

7. $1^{23} = \boxed{1}$

8. 0^{28}

9. $(-2)^5 = (-2)(-2)(-2)(-2)(-2)$

$= 4 \cdot 4 \cdot (-2)$

$= 16 \cdot (-2)$

$= \boxed{-32}$

10. $(-4)^3$

11. $(-2)^4 = (-2)(-2)(-2)(-2)$

$= 4 \cdot 4$

$= \boxed{16}$

12. $(-4)^4$

13. $\sqrt{25} = \sqrt{5^2} = \boxed{5}$

14. $\sqrt{81}$

Answers: **1.** 27; **3.** $\frac{1}{8}$; **5.** 1.44; **7.** 1; **9.** –32; **11.** 16; **13.** 5

Evaluate the expressions.

15. $-\sqrt{16} = -\sqrt{4^2} = \boxed{-4}$

16. $-\sqrt{36}$

17. $\sqrt{\frac{4}{25}} = \sqrt{\left(\frac{2}{5}\right)^2} = \boxed{\frac{2}{5}}$

18. $\sqrt{\frac{9}{64}}$

19. $\sqrt[4]{81} = \sqrt[4]{3^4} = \boxed{3}$

$3\overline{)81}$
$3\overline{)27}$
$3\overline{)9}$
3

20. $\sqrt[4]{16}$

21. $\sqrt[5]{32} = \sqrt[5]{2^5} = \boxed{2}$

$2\overline{)32}$
$2\overline{)16}$
$2\overline{)8}$
$2\overline{)4}$
2

22. $\sqrt[5]{100{,}000}$

23. $\sqrt[3]{-8} = \sqrt[3]{(-2)^3} = \boxed{-2}$

24. $\sqrt[3]{-1{,}000}$

25. $\sqrt[5]{-1} = \sqrt[5]{(-1)^5} = \boxed{-1}$

26. $\sqrt[6]{1}$

Answers: **15.** -4; **17.** $\frac{2}{5}$; **19.** 3; **21.** 2; **23.** -2; **25.** -1