1. $\frac{1}{(\sqrt[t]{a})^s}$; t

2. nth root

3. When a is positive, it has two real fourth roots, $\pm\sqrt[4]{a}$, and one real fifth root $\sqrt[5]{a}$. When a is negative, it has no real fourth roots and one real fifth root, $\sqrt[5]{a}$.

4. $(\sqrt[m]{a})^{-n}$; $(\sqrt[m]{a})^{-n} = \frac{1}{a^{n/m}}$; $(a^{1/n})^m = (\sqrt[n]{a})^m = a^{m/n}$

5. 2

6. -1

7. 0

8. ± 4

9. -2

10. no real sixth roots

11. 2

12. 2

13. 125

14. 27

15. -3

16. 256

17. $\frac{1}{4}$

18. $\frac{1}{128}$

19. The cube root of 27 was calculated incorrectly;
$27^{2/3} = (27^{1/3})^2 = 3^2 = 9$

20. The index and exponent were switched;
$256^{4/3} = (\sqrt[3]{256})^4 \approx 6.35^4 \approx 1625.50$

21. B; The denominator of the exponent is 3 and the numerator is 4.

22. D; The denominator of the exponent is 4 and the numerator is 3.

23. A; The denominator of the exponent is 4 and the exponent is negative.

24. C; The denominator of the exponent is 4 and the expression is negative.

25. 8

26. 2.89

27. 0.34

28. 2.10

29. 2840.40

30. 0.02

31. 50.57

32. 27.86

33. $r \approx 3.72$ ft

34. $r \approx 6.86$ cm