

1. Evaluate each expression to the nearest hundredth.

a. $\sqrt[3]{982} = \underline{3.97}$

b. $20 + \sqrt[3]{81} = \underline{24.33}$

c. $215^{\frac{3}{5}} = \underline{25.09}$

2. Find all real roots of each number.

a. $\sqrt{25} = \underline{\pm 5}$

b. $\sqrt[3]{-125} = \underline{-5}$

Write in simplest radical form.

3. $\sqrt{28} \quad (2\sqrt{7})$

4. $\frac{2}{3} \cdot \sqrt{36}$
 $\frac{2}{3} \cdot 6 = (4)$

5. $\sqrt[3]{g^{20}h^{15}}$
 (g^4h^3)

6. $\sqrt[3]{54a^3}$
 $(3a\sqrt[3]{2})$

7. $\sqrt{a^9b^{10}}$
 $(a^4b^5\sqrt{a})$

8. $\sqrt[6]{x^{13}y^{29}}$
 $(x^2y^4\sqrt[6]{xy^5})$

9. $\frac{20\sqrt{5}}{\sqrt{5}\sqrt{5}} = \frac{20\sqrt{5}}{5} = (4\sqrt{5})$

10. $\frac{\sqrt{x}}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \left(\frac{\sqrt{3x}}{3} \right)$

11. $\frac{\sqrt{12}}{\sqrt{3}} = \sqrt{4} = (2)$

12. $\frac{3}{\sqrt{18}} \cdot \frac{\sqrt{18}}{\sqrt{18}} = \frac{3\sqrt{18}}{18} = \frac{3 \cdot 3\sqrt{2}}{18} = \frac{9\sqrt{2}}{18} = \left(\frac{\sqrt{2}}{2} \right)$

13. $\frac{2}{\sqrt{x}} \cdot \frac{\sqrt{x^6}}{\sqrt{x^6}} = \left(\frac{2\sqrt{x^6}}{x} \right)$

14. $\sqrt{\frac{25}{81}} = \left(\frac{5}{9} \right)$

15. $6\sqrt{2} + 3\sqrt{5} - 3\sqrt{5} - 10\sqrt{2}$
 $(-4\sqrt{2})$

16. $2\sqrt{27} + \sqrt{75}$
 $2\sqrt{9 \cdot 3} + \sqrt{25 \cdot 3}$
 $6\sqrt{3} + 5\sqrt{3}$
 $(11\sqrt{3})$

17. $\sqrt{8} - \sqrt{32}$
 $\sqrt{4 \cdot 2} - \sqrt{16 \cdot 2}$
 $2\sqrt{2} - 4\sqrt{2}$
 $(-2\sqrt{2})$

Write in simplest radical form.

18. $\sqrt[3]{16} + \sqrt[3]{54}$

$\sqrt[3]{8 \cdot 2} + \sqrt[3]{27 \cdot 2}$
 $2\sqrt[3]{2} + 3\sqrt[3]{2} = \boxed{5\sqrt[3]{2}}$

19. $5\sqrt{81x} + 4\sqrt{144x}$

$45\sqrt{x} + 48\sqrt{x}$
 $\boxed{93\sqrt{x}}$

20. $\sqrt[4]{3} \cdot \sqrt[4]{27}$

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

21. $\sqrt{10a} \cdot \sqrt{5ab^6}$

$\sqrt{50a^2b^6}$
 $\boxed{5ab^3\sqrt{2}}$

22. $\sqrt[5]{x^2y} \cdot \sqrt[5]{x^4y^9}$

$\sqrt[5]{x^6y^{10}} = \boxed{xy^2\sqrt[5]{x}}$

23. $(\sqrt{5}-3)(\sqrt{5}+4)$

$5 + 4\sqrt{5} - 3\sqrt{5} - 12$
 $\boxed{-7 + \sqrt{5}}$

24. $(2\sqrt{3}+4)(2\sqrt{3}-4)$

$4 \cdot 3 - 8\sqrt{3} + 8\sqrt{3} - 16$
 $12 - 16 = \boxed{-4}$

Solve. Please circle all of your answers.

25. $\sqrt{x+3} = 9^2$

$x+3 = 81$
 $\boxed{x = 78}$

26. $\sqrt{x-5} - 6 = 4$

$\sqrt{x-5} = 10^2$
 $x-5 = 100$
 $\boxed{x = 105}$

27. $\frac{4\sqrt[3]{2x+11}}{4} = \frac{12}{4}$

$\sqrt[3]{2x+11} = 3^3$
 $2x+11 = 27$
 $2x = 16$
 $\boxed{x = 8}$

28. $(x-2)^{3/5} = 8^{5/3}$

$x-2 = 32$
 $\boxed{x = 34}$

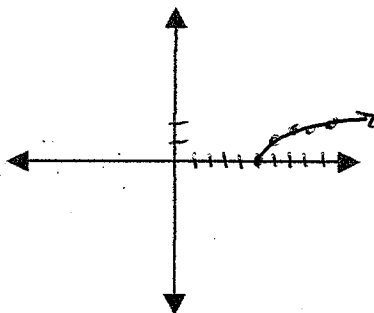
29. $2x^{3/4} - 2 = 160$

$2x^{3/4} = 162$
 $(x^{3/4})^{4/3} = (81)^{4/3}$
 $\boxed{x = 350.47}$

Graph each equation below by completing the t-chart with at least 4 points, sketching the graph, and numbering all axes on the grid.

30. $y = \sqrt{x-5}$

5	0
6	1
7	1.4
8	1.7
9	2



31. $y = \sqrt{x+1} - 3$

-1	-3
0	-2
1	-1.6
2	-1.3
3	-1

