

BASIC ALGEBRA EXAM 5 D* NAME _____

**SHOW ALL WORK AS NECESSARY ON THIS TEST OR ON SEPARATE PAPER.
CALCULATORS ARE REQUIRED ON THIS TEST. SIMPLIFY ALL RADICALS
COMPLETELY.**

1. $\sqrt{25}$

2. $\sqrt{64x^6}$

3. $\sqrt{24}$

4. $\sqrt{98}$

5. $\sqrt{63}$

6. $\sqrt{48}$

7. $\sqrt{40x^8}$

8. $\sqrt{12x^{10}y^7}$

9. $\sqrt{36x^9}$

10. $\sqrt{28x^{28}}$

11. $\sqrt{50x^8y^{15}}$

12. $\sqrt{75x^7y^{16}}$

13. $\sqrt{300a^{13}}$

14. $\sqrt{72x^{10}y^{25}}$

15. $\sqrt{169x^{20}y^{15}}$

16. $\sqrt{60x^{19}y^{13}}$

17. $\sqrt[3]{125}$

18. $\sqrt[3]{64x^{12}}$

19. $\sqrt[3]{54}$

20. $\sqrt[3]{40}$

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21. $\sqrt{3} + \sqrt{3}$

22. $\sqrt{20} + \sqrt{5}$

23. $\sqrt{12} + \sqrt{75}$

24. $6\sqrt{18} + 2\sqrt{50}$

25. $6\sqrt{125} + 9\sqrt{40} - 12\sqrt{20}$

26. Give the calculator value of $\sqrt{12} + \sqrt{75}$ (round to nearest hundredth).

27. Give the calculator value of $6\sqrt{125} + 9\sqrt{40} - 12\sqrt{20}$ (round to nearest hundredth).

28. $\sqrt{3} \cdot \sqrt{3}$

29. $4\sqrt{10} \cdot 7\sqrt{15}$

30. $4\sqrt{55} \cdot 5\sqrt{77}$

31. $5\sqrt{5}(6\sqrt{3} - 4\sqrt{6})$

32. $4\sqrt{10}(9\sqrt{5} - 8\sqrt{2})$

33. $(6 - \sqrt{5})(6 + \sqrt{5})$

34. $(8 - \sqrt{2})(7 - \sqrt{2})$

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35. $(4\sqrt{7} + \sqrt{5})(2\sqrt{7} - \sqrt{5})$

36. $(8\sqrt{6} - 5\sqrt{2})(5\sqrt{6} - 2\sqrt{2})$

37. $(\sqrt{14} + \sqrt{2})^2$

38. $(8\sqrt{6} + 5\sqrt{3})^2$

39. Calculate the value of $(8\sqrt{6} + 5\sqrt{3})^2$ rounded to the nearest hundredth.

Extra Credit: Calculate the value of $(8\sqrt{6} - 5\sqrt{3})^2 + (8\sqrt{6} + 5\sqrt{3})^2$.

1. $\sqrt{25}$ (5) 2. $\sqrt{64x^6}$ ($8x^3$) 3. $\sqrt{24}$ ($\frac{\sqrt{4}\sqrt{6}}{2\sqrt{6}}$) 4. $\sqrt{98}$ ($7\sqrt{2}$) 5. $\sqrt{63}$ ($3\sqrt{7}$) 6. $\sqrt{48}$ ($4\sqrt{3}$)

7. $\sqrt{40x^8}$ ($2x^4\sqrt{10}$) 8. $\sqrt{12x^{10}y^7}$ ($2x^5y^3\sqrt{3y}$) 9. $\sqrt{36x^9}$ ($6x^4\sqrt{x}$) 10. $\sqrt{28x^{28}}$ ($2x^{14}\sqrt{7}$) 11. $\sqrt{50x^8y^{15}}$ ($5x^4y^7\sqrt{2y}$)

12. $\sqrt{75x^7y^{16}}$ ($5x^3y^8\sqrt{3x}$) 13. $\sqrt{300a^{13}}$ ($10a^6\sqrt{3a}$) 14. $\sqrt{72x^{10}y^{25}}$ ($6x^5y^{12}\sqrt{2y}$) 15. $\sqrt{169x^{20}y^{15}}$ ($13x^{10}y^7\sqrt{y}$) 16. $\sqrt{60x^{19}y^{13}}$ ($2x^9y^6\sqrt{15xy}$)

17. $\sqrt[3]{125}$ (5) 18. $\sqrt[3]{64x^{12}}$ ($4x^4$) 19. $\sqrt[3]{54}$ ($3\sqrt[3]{2}$) 20. $\sqrt[3]{40}$ ($2\sqrt[3]{5}$) 21. $\sqrt{3} + \sqrt{3}$ ($2\sqrt{3}$) 22. $\sqrt{20} + \sqrt{5}$ ($\sqrt{4}\sqrt{5} + \sqrt{5}$)

23. $\sqrt{12} + \sqrt{75}$ ($2\sqrt{3} + 5\sqrt{3}$) ($7\sqrt{3}$) 24. $6\sqrt{18} + 2\sqrt{50}$ ($6\sqrt{9}\sqrt{2} + 2\sqrt{25}\sqrt{2}$) ($6 \cdot 3\sqrt{2} + 2 \cdot 5\sqrt{2}$) ($18\sqrt{2} + 10\sqrt{2}$) ($28\sqrt{2}$) 25. $6\sqrt{125} + 9\sqrt{40} - 12\sqrt{20}$ ($6\sqrt{25}\sqrt{5} + 9\sqrt{4}\sqrt{10} - 12\sqrt{4}\sqrt{5}$) ($6 \cdot 5\sqrt{5} + 9 \cdot 2\sqrt{10} - 12 \cdot 2\sqrt{5}$) ($30\sqrt{5} + 18\sqrt{10} - 24\sqrt{5}$) ($6\sqrt{5} + 18\sqrt{10}$)

26. (12, 12) 27. (70, 34) 28. $\sqrt{3}\sqrt{3} = 3$ 29. $4\sqrt{10} \cdot 7\sqrt{15}$ ($28\sqrt{150}$) 30. $4\sqrt{55} \cdot 5\sqrt{77}$ ($20\sqrt{5 \cdot 11 \cdot 7 \cdot 11}$) 31. $5\sqrt{5}(6\sqrt{3} - 4\sqrt{6})$ ($30\sqrt{15} - 20\sqrt{30}$)

32. $4\sqrt{10}(9\sqrt{5} - 8\sqrt{2})$ ($36\sqrt{50} - 32\sqrt{20}$) ($36\sqrt{25}\sqrt{2} - 32\sqrt{4}\sqrt{5}$) ($36 \cdot 5\sqrt{2} - 32 \cdot 2\sqrt{5}$) ($180\sqrt{2} - 64\sqrt{5}$) 33. $(6 - \sqrt{5})(6 + \sqrt{5})$ ($36 + 6\sqrt{5} - 6\sqrt{5} - 5$) (31) 34. $(8 - \sqrt{2})(7 - \sqrt{2})$ ($56 - 8\sqrt{2} - 7\sqrt{2} + 2$) ($58 - 15\sqrt{2}$)

35. $(4\sqrt{7} + \sqrt{5})(2\sqrt{7} - \sqrt{5})$ ($8 \cdot 7 - 4\sqrt{35} + 2\sqrt{35} - 5$) ($51 - 2\sqrt{35}$) 36. $(8\sqrt{6} - 5\sqrt{2})(5\sqrt{6} - 2\sqrt{2})$ ($40 \cdot 6 - 16\sqrt{12} - 25\sqrt{12} + 10 \cdot 2$) ($240 - 41\sqrt{4}\sqrt{3} + 20$) 37. $(\sqrt{14} + \sqrt{2})(\sqrt{14} + \sqrt{2})$ ($14 + \sqrt{28} + \sqrt{28} + 2$) ($16 + 2\sqrt{28}$)

38. $(8\sqrt{6} + 5\sqrt{3})(8\sqrt{6} + 5\sqrt{3})$ ($64 \cdot 6 + 40\sqrt{18} + 40\sqrt{18} + 25 \cdot 3$) ($384 + 80\sqrt{18} + 75$) ($459 + 80\sqrt{9}\sqrt{2}$) ($459 + 240\sqrt{2}$) 39. (798, 41) 40. (918)

Actually: $\left. \begin{array}{l} 459 + 240\sqrt{2} \\ + 459 - 240\sqrt{2} \end{array} \right\} = 918$