

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

1. $\sqrt{49}$

2. $\sqrt{81x^6}$

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

4. $\sqrt[3]{8x^3y^9}$

5. $\sqrt{20}$

6. $\sqrt{75}$

7. $\sqrt{72}$

8. $\sqrt[3]{72}$

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

10. $\sqrt{x^6y^5}$

11. $\sqrt{28x^7y^{16}}$

12. $\sqrt{90x^9y^{10}}$

13. $\sqrt{6} + \sqrt{6}$

14. $\sqrt{40} + \sqrt{90}$

15. $2\sqrt{45} + 3\sqrt{125}$

16. $\sqrt{7}\sqrt{14}$

17. $\sqrt{28} \cdot \sqrt{35}$

18. $\sqrt{34} \cdot \sqrt{51}$

19. $9\sqrt{6} \cdot 2\sqrt{10}$

20. $12\sqrt{30} \cdot 6\sqrt{5}$

21. $7\sqrt{3}(5\sqrt{2}-2\sqrt{5})$

22. $6\sqrt{15}(3\sqrt{3}+5\sqrt{10})$

23. $(8+\sqrt{5})(5-\sqrt{2})$

24. $(3\sqrt{10}-2\sqrt{5})(3\sqrt{5}+\sqrt{2})$

25. $(5\sqrt{6}+2\sqrt{3})(5\sqrt{6}+2\sqrt{3})$

26. Give the calculator value of your answer to problem #25.
(Round to nearest hundredth).

Basic Algebra Exam 5z Solutions

$$1. \sqrt{49} = 7 \quad 2. \sqrt{81x^6} = 9x^3 \quad 3. \sqrt[3]{125} = 5 \quad 4. \sqrt[3]{8x^3y^9} = 2xy^3$$

$$5. \sqrt{20} = \sqrt{4} \sqrt{5} = 2\sqrt{5} \quad 6. \sqrt{75} = \sqrt{25} \sqrt{3} = 5\sqrt{3} \quad 7. \sqrt{72} = \sqrt{36} \cdot \sqrt{2} = 6\sqrt{2} \quad 8. \sqrt[3]{72} = \sqrt[3]{8} \sqrt[3]{9} = 2\sqrt[3]{9}$$

$$9. \sqrt[3]{54} = \sqrt[3]{27} \cdot \sqrt[3]{2} = 3\sqrt[3]{2} \quad 10. \sqrt{x^6y^5} = \sqrt{x^4y^4} \sqrt{y} = x^2y^2\sqrt{y} \quad 11. \sqrt{28x^7y^{16}} = \sqrt{4x^6y^{16}} \sqrt{7x} = 2x^3y^8\sqrt{7x}$$

$$12. \sqrt{90x^9y^{10}} = \sqrt{9x^8y^{10}} \sqrt{10x} = 3x^4y^5\sqrt{10x}$$

$$13. \sqrt{6} + \sqrt{6} = 2\sqrt{6}$$

$$14. \sqrt{40} + \sqrt{90} = \sqrt{4} \sqrt{10} + \sqrt{9} \sqrt{10} = 2\sqrt{10} + 3\sqrt{10} = 5\sqrt{10}$$

$$15. 2\sqrt{45} + 3\sqrt{125} = 2\sqrt{9} \sqrt{5} + 3\sqrt{25} \sqrt{5} = 2 \cdot 3\sqrt{5} + 3 \cdot 5\sqrt{5} = 6\sqrt{5} + 15\sqrt{5} = 21\sqrt{5}$$

$$16. \sqrt{7} \sqrt{14} = \sqrt{7 \cdot 7 \cdot 2} = 7\sqrt{2}$$

$$17. \sqrt{28} \cdot \sqrt{35} = \sqrt{4 \cdot 7 \cdot 7 \cdot 5} = \sqrt{4} \cdot \sqrt{49} \cdot \sqrt{5} = 2 \cdot 7 \cdot \sqrt{5} = 14\sqrt{5}$$

$$18. \sqrt{34} \cdot \sqrt{51} = \sqrt{2 \cdot 17 \cdot 3 \cdot 17} = \sqrt{17^2} \cdot \sqrt{6} = 17\sqrt{6}$$

$$19. 9\sqrt{6} \cdot 2\sqrt{10} = 18\sqrt{60} = 18 \cdot \sqrt{4} \sqrt{15} = 18 \cdot 2\sqrt{15} = 36\sqrt{15}$$

$$20. 12\sqrt{30} \cdot 6\sqrt{5} = 72\sqrt{150} = 72\sqrt{25} \sqrt{6} = 72 \cdot 5 \cdot \sqrt{6} = 360\sqrt{6}$$

$$21. 7\sqrt{3} (5\sqrt{2} - 2\sqrt{5}) = 35\sqrt{6} - 14\sqrt{15}$$

$$22. 6\sqrt{15} (3\sqrt{3} + 5\sqrt{10}) = 18\sqrt{45} + 30\sqrt{150} = 18 \cdot \sqrt{9} \sqrt{5} + 30 \cdot \sqrt{25} \sqrt{6} = 18 \cdot 3\sqrt{5} + 30 \cdot 5\sqrt{6} = 54\sqrt{5} + 150\sqrt{6}$$

$$23. (8 + \sqrt{5})(5 - \sqrt{2}) = 40 - 8\sqrt{2} + 5\sqrt{5} - \sqrt{10}$$

$$24. (3\sqrt{10} - 2\sqrt{5})(3\sqrt{5} + \sqrt{2}) = 9\sqrt{50} + 3\sqrt{20} - 6\sqrt{25} - 2\sqrt{10} = 9\sqrt{25} \sqrt{2} + 3\sqrt{4} \sqrt{5} - 6 \cdot 5 - 2\sqrt{10} = 9 \cdot 5\sqrt{2} + 3 \cdot 2\sqrt{5} - 30 - 2\sqrt{10} = 45\sqrt{2} + 6\sqrt{5} - 30 - 2\sqrt{10}$$

$$25. (5\sqrt{6} + 2\sqrt{3})(5\sqrt{6} + 2\sqrt{3}) = 25\sqrt{36} + 10\sqrt{18} + 10\sqrt{18} + 4\sqrt{9} = 25 \cdot 6 + 20\sqrt{18} + 4 \cdot 3 = 150 + 20\sqrt{9} \sqrt{2} + 12 = 162 + 60\sqrt{2}$$

$$26. 162 + 60 \sqrt{2} = 246.85$$

(C) 5 $\sqrt{6}$ + 2 $\sqrt{3}$ (D) $\sqrt{7}$ (E)