BASIC ALGEBRA EXAM 5 YR R^2 NAME _____

SHOW ALL WORK ON THIS TEST OR ON SEPARATE PAPER. Circle answers.
TURN IN ALL WORKSHEETS. CALCULATORS ARE PERMITTED ON THIS TEST.

In 1-8, simplify completely:

1. $\sqrt{64}$

2. $\sqrt{144X^{10}}$

3. $\sqrt[3]{64}$

4. $\sqrt[3]{125X^6Y^{15}}$

5. $\sqrt{50}$

6. $\sqrt{98}$

7. $\sqrt{28}$

8. $\sqrt{300}$

9. $\sqrt{90}$

10. $\sqrt{48}$

11. $\sqrt{72}$

12. $\sqrt{270}$

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

14. $\sqrt[3]{270}$

15. $\sqrt{X^4Y^{10}}$

16. $\sqrt{X^5Y^8}$

17. $\sqrt{8X^4Y^{12}}$

18. $\sqrt{36X^7Y^9}$

19. $\sqrt{60X^{20}Y^{14}}$ 20. $\sqrt{40X^{6}Y^{15}}$ 21. $\sqrt{72X^{9}Y^{10}}$

22. $\sqrt{2} + \sqrt{2}$ 23. $\sqrt{60} + \sqrt{15}$ 24. $5\sqrt{28} - \sqrt{63}$

25. $5\sqrt{75} + 6\sqrt{27}$ 26. $2\sqrt{175} - 8\sqrt{28}$

27a) Give the calculator value of $2\sqrt{175} - 8\sqrt{28}$

b) Calculator value of your answer to previous exercise:

28. $\sqrt{8} \cdot \sqrt{2}$ 29. $\sqrt{35} \cdot \sqrt{28}$ 30. $\sqrt{38} \cdot \sqrt{57}$

31. $8\sqrt{10} \cdot 2\sqrt{5}$

32. $7\sqrt{10} \cdot 6\sqrt{15}$

33. $7\sqrt{3}(5\sqrt{2} - 2\sqrt{5})$

34. $6\sqrt{15}(2\sqrt{5} + 3\sqrt{6})$

35. $(8 + \sqrt{5})(5 - \sqrt{5})$

36. $(3\sqrt{10} - 2\sqrt{5})(3\sqrt{10} + \sqrt{5})$

37. $(8 + \sqrt{5})(5 - \sqrt{2})$

38. $(3\sqrt{10} - 2\sqrt{2})(3\sqrt{10} + 2\sqrt{2})$

39. $(5\sqrt{6} - 3\sqrt{2})^2$

40a) Calculate the value of $(5\sqrt{6} - 3\sqrt{2})^2$

b) Calculator value of previous answer:

BASIC ALGEBRA EXAM 5YR Solutions (2.3 pts each, some partial credit)

1. $\sqrt{64} = 8$ 2. $\sqrt{144x^{10}} = 12x^5$ 3. $\sqrt[3]{64} = 4$ 4. $\sqrt[3]{125x^6y^{15}} = 5x^2y^5$

5. $\sqrt{50}$
$\sqrt{25}\cdot\sqrt{2}$
$5\sqrt{2}$

6. $\sqrt{98}$
$\sqrt{49}\sqrt{2}$
$7\sqrt{2}$

7. $\sqrt{28}$
$\sqrt{4}\sqrt{7}$
$2\sqrt{7}$

8. $\sqrt{300}$
$\sqrt{100}\sqrt{3}$
$10\sqrt{3}$

9. $\sqrt{90}$
$\sqrt{9}\sqrt{10}$
$3\sqrt{10}$

10. $\sqrt{48}$
$\sqrt{16}\sqrt{3}$
$4\sqrt{3}$

11. $\sqrt{72}$
$\sqrt{36}\sqrt{2}$
$6\sqrt{2}$

12. $\sqrt{270}$
$\sqrt{9}\sqrt{30}$
$3\sqrt{30}$

13. $\sqrt[3]{72}$
$\sqrt[3]{8}\sqrt[3]{9}$
$2\sqrt[3]{9}$

14. $\sqrt[3]{270}$
$\sqrt[3]{27}\sqrt[3]{10}$
$3\sqrt[3]{10}$

15. $\sqrt{x^4y^{10}}$
x^2y^5

16. $\sqrt{x^5y^8}$
$\sqrt{x^4y^8}\sqrt{x}$
$x^2y^4\sqrt{x}$

17. $\sqrt{8x^4y^{12}}$
$\sqrt{4x^4y^{12}}\sqrt{2}$
$2x^2y^6\sqrt{2}$

18. $\sqrt{36x^7y^9}$
$\sqrt{36x^6y^8}\sqrt{xy}$
$6x^3y^4\sqrt{xy}$

19. $\sqrt{60x^{20}y^{14}}$
$\sqrt{4x^{20}y^{14}}\sqrt{15}$
$2x^{10}y^7\sqrt{15}$

20. $\sqrt{40x^6y^{15}}$
$\sqrt{4x^6y^{14}}\sqrt{10y}$
$2x^3y^7\sqrt{10y}$

21. $\sqrt{72x^9y^{10}}$
$\sqrt{36x^8y^{10}}\sqrt{2x}$
$6x^4y^5\sqrt{2x}$

22. $1\sqrt{2} + 1\sqrt{2}$
$2\sqrt{2}$

23. $\sqrt{60} + \sqrt{15}$
$\sqrt{4}\sqrt{15} + \sqrt{15}$
$2\sqrt{15} + 1\sqrt{15}$
$3\sqrt{15}$

24. $5\sqrt{28} - \sqrt{63}$
$5\sqrt{4}\sqrt{7} - \sqrt{9}\sqrt{7}$
$5\cdot 2\sqrt{7} - 3\sqrt{7}$
$10\sqrt{7} - 3\sqrt{7}$
$7\sqrt{7}$

25. $5\sqrt{75} + 6\sqrt{27}$
$5\sqrt{25}\sqrt{3} + 6\sqrt{9}\sqrt{3}$
$5\cdot 5\sqrt{3} + 6\cdot 3\sqrt{3}$
$25\sqrt{3} + 18\sqrt{3}$
$43\sqrt{3}$

26. $2\sqrt{175} - 8\sqrt{28}$
$2\sqrt{25}\sqrt{7} - 8\sqrt{4}\sqrt{7}$
$2\cdot 5\sqrt{7} - 8\cdot 2\sqrt{7}$
$10\sqrt{7} - 16\sqrt{7}$
$-6\sqrt{7}$

27. -15.874

28. $\sqrt{8}\sqrt{2}$
$\sqrt{16}$
4

29. $\sqrt{35}\cdot\sqrt{28}$
$\sqrt{7\cdot 5\cdot 7\cdot 4}$
$7\cdot 2\sqrt{5}$
$14\sqrt{5}$

30. $\sqrt{38}\cdot\sqrt{57}$
$\sqrt{2\cdot 19\cdot 3\cdot 19}$
$19\sqrt{6}$

31. $8\sqrt{10}\cdot 2\sqrt{5}$
$16\sqrt{50}$
$16\sqrt{25}\sqrt{2}$
$16\cdot 5\sqrt{2}$
$80\sqrt{2}$

32. $7\sqrt{10}\cdot 6\sqrt{15}$
$42\cdot\sqrt{5\cdot 2\cdot 5\cdot 3}$
$42\cdot 5\sqrt{6}$
$210\sqrt{6}$

33. $7\sqrt{3}(5\sqrt{2} - 2\sqrt{5})$
$35\sqrt{6} - 14\sqrt{15}$

34. $6\sqrt{15}(2\sqrt{5} + 3\sqrt{6})$
$12\sqrt{75} + 18\sqrt{90}$
$12\sqrt{25}\sqrt{3} + 18\sqrt{9}\sqrt{10}$
$12\cdot 5\sqrt{3} + 18\cdot 3\sqrt{10}$
$60\sqrt{3} + 54\sqrt{10}$

35. $(8 + \sqrt{5})(5 - \sqrt{5})$
$40 - 8\sqrt{5} + 5\sqrt{5} - 5$
$35 - 3\sqrt{5}$

36. $(3\sqrt{10} - 2\sqrt{5})(3\sqrt{10} + \sqrt{5})$
$9\cdot 10 + 3\sqrt{50} - 6\sqrt{50} - 2\cdot 5$
$90 - 3\sqrt{50} - 10$
$80 - 3\cdot 5\sqrt{2}$ or $80 - 15\sqrt{2}$

39. $(8 + \sqrt{5})(5 - \sqrt{2})$
$40 - 8\sqrt{2} + 5\sqrt{5} - \sqrt{10}$

40. $(3\sqrt{10} - 2\sqrt{2})(3\sqrt{10} + 2\sqrt{2})$
$9\cdot 10 + 6\sqrt{20} - 6\sqrt{20} - 4\cdot 2$
$90 - 8$ or 82

41. $(5\sqrt{6} - 3\sqrt{2})(5\sqrt{6} - 3\sqrt{2})$
$25\cdot 6 - 15\sqrt{12} - 15\sqrt{12} + 9\cdot 2$
$150 - 30\sqrt{12} + 18$
$168 - 30\cdot\sqrt{4}\sqrt{3}$
$168 - 60\sqrt{3}$

42. 64.076