ALGEBRA 1B
Unit 9 Review

Name _____ **Date:**_____

Objective 1 – Estimate a radical without using a calculator

WITHOUT a calculator, estimate each square root.

1. $\sqrt{85}$ 1. _____
2. $\sqrt{68}$ 2. _____
3. $\sqrt{32}$ 3. _____
4. $\sqrt{108}$ 4. _____

Objective 2 – Simplify a radical expression (without variables)

Simplify the following expressions.

5. $\sqrt{64}$ 5. _____
6. $\sqrt{\frac{4}{9}}$ 6. _____
7. $\sqrt{18}$ 7. _____
8. $\sqrt{75}$ 8. _____
9. $\sqrt{120}$ 9. _____

Objective 3 – Add and/or Subtract radicals(without having to simplify first)

Simplify the following expressions.

10. $3\sqrt{2} + \sqrt{2}$ 10. _____

11. $5\sqrt{2} - 2\sqrt{2}$ 11. _____

12. $7\sqrt{6} + 4\sqrt{6} - 5\sqrt{6}$ 12. _____

13. $4\sqrt{3} - \sqrt{6} + 2\sqrt{3} + 5\sqrt{6}$ 13. _____

14. $9 - 2\sqrt{5} + 6\sqrt{5} - 4$ 14. _____

Objective 4 – Multiply radicals (without variables)

Multiply.

15. $\sqrt{3} * \sqrt{3}$ 15. _____

16. $\sqrt{2} * \sqrt{32}$ 16. _____

17. $3\sqrt{6} * \sqrt{6}$ 17. _____

18. $2\sqrt{5} \cdot \sqrt{20}$ 18. _____

19. $5\sqrt{7} * 2\sqrt{28}$ 19. _____

Objective 5 – Simplify radical expression by rationalizing the denominator

Simplify.

20. $\frac{2}{\sqrt{3}}$ 20. _____

21. $\frac{6}{\sqrt{10}}$ 21. _____

22. $\sqrt{\frac{50}{72}}$ 22. _____

23. $\frac{15}{\sqrt{3}}$ 23. _____

24. $\frac{\sqrt{42}}{\sqrt{6}}$ 24. _____

Objective 6 – Solve equations using square roots

Solve.

25. $x^2 = 81$ 25. _____

26. $x^2 - 20 = 5$ 26. _____

27. $3x^2 + 5 = 32$ 27. _____

28. $4x^2 = 25$ 28. _____

29. $(x+3)^2 = 36$ 29. _____

30. $2(x-10)^2 - 5 = 195$ 30. _____