Name: KEY Date: _____ Period: _____

GSE Algebra 1

Day 25 - Multiplying Radicals Homework

Remember to Simplify your answer if possible.

1. $\sqrt{5} \cdot \sqrt{3} = \sqrt{15}$

2. $\sqrt{6} \cdot \sqrt{2} = \sqrt{12} = 2\sqrt{3}$

3. $\sqrt{3} \cdot \sqrt{6} = \sqrt{18} = 3\sqrt{2}$

4. $\sqrt{5} \cdot \sqrt{10} = \sqrt{50} = 5\sqrt{2}$

5. $\sqrt{27} \cdot \sqrt{3} = \sqrt{27 \cdot 3} = \sqrt{9 \cdot 3 \cdot 3} = \sqrt{3 \cdot 3}\sqrt{3 \cdot 3}$

$= 9$

6. $\sqrt{10} \cdot \sqrt{20} = \sqrt{10 \cdot 2 \cdot 10} = 10\sqrt{2}$

7. $\sqrt{20} \cdot \sqrt{40} = \sqrt{20 \cdot 20 \cdot 2} = 20\sqrt{2}$

8. $\sqrt{2x} \cdot \sqrt{3x} = \sqrt{6x^2} = x\sqrt{6}$

9. $\sqrt{6x} \cdot \sqrt{2x} = \sqrt{12x^2} = 2x\sqrt{3}$

10. $\sqrt{30x^2} \cdot \sqrt{3x^2} = \sqrt{3 \cdot 10 \cdot 3 \cdot x^2 \cdot x^2}$

$= 3x^2\sqrt{10}$

11. $\sqrt{3x} \cdot \sqrt{8x^3} = \sqrt{24x^4} = 2x^2\sqrt{6}$

$24 \rightarrow 12 \rightarrow 6$

12. $\sqrt{40x^2} \cdot \sqrt{10x} = \sqrt{4 \cdot 10 \cdot 10 \cdot x^2 \cdot x}$

$(2 \cdot 2)$

$= 20x\sqrt{x}$

13. $\sqrt{12x^5} \cdot \sqrt{12x^5} = 12x^5$

14. $5\sqrt{2} \cdot 4\sqrt{3} = 20\sqrt{6}$

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15. $-7\sqrt{3} \cdot 2\sqrt{10} = -14\sqrt{30}$

16. $2\sqrt{6} \cdot 5\sqrt{3} = 10\sqrt{3 \cdot 2 \cdot 3} = 30\sqrt{2}$

17. $4\sqrt{10} \cdot -3\sqrt{2} = -12\sqrt{5 \cdot 2 \cdot 2}$

$= -24\sqrt{5}$

18. $2\sqrt{8} \cdot \sqrt{18} = 2\sqrt{8 \cdot 18} = 2\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3}$

$= 2(2)(2)(3) = 24$

19. $-10\sqrt{3} \cdot -2\sqrt{21} = +20\sqrt{3 \cdot 3 \cdot 7}$

$= 60\sqrt{7}$

20. $-\sqrt{6} \cdot 7\sqrt{10} = -7\sqrt{6 \cdot 10}$

$= -7\sqrt{3 \cdot 2 \cdot 2 \cdot 5} = -14\sqrt{15}$

21. $3\sqrt{ab} \cdot 6\sqrt{ab} = 18ab$

22. $\sqrt{2ab^2} \cdot \sqrt{14ab^2} = ab^2\sqrt{2 \cdot 2 \cdot 7}$

$= 2ab^2\sqrt{7}$

23. $-15\sqrt{a^2b} \cdot -\sqrt{5a^2} = +15a^2\sqrt{5b}$

24. $\sqrt{8ab^2} \cdot -\sqrt{10a^3b^4} = -\sqrt{2 \cdot 2 \cdot 2ab \cdot 2 \cdot 5 \cdot a^3b^4}$

$= -4a^2b^2\sqrt{5b}$

25. $2\sqrt{18a^2b} \cdot 6\sqrt{3b^2} = 12\sqrt{3 \cdot 3 \cdot 2 \cdot a^2 \cdot b \cdot 3b^2}$

$= 36ab\sqrt{6b}$

26. $5\sqrt{2a^3b^8} \cdot 4\sqrt{12a^2} = 20\sqrt{2a^3b^8 \cdot 2 \cdot 6a^2}$

$= 40\sqrt{6a^5b^8} = 40a^2b^4\sqrt{6a}$