

Multiply and Divide Radical Expressions

$2 \cdot 5 = \underline{\hspace{2cm}}$

$2 \cdot \sqrt{5} = \underline{\hspace{2cm}}$

$\sqrt{2} \cdot 5 = \underline{\hspace{2cm}}$

$\sqrt{2} \cdot \sqrt{5} = \underline{\hspace{2cm}}$

$2\sqrt{3} \cdot 5 = \underline{\hspace{2cm}}$

$2\sqrt{3} \cdot \sqrt{5} = \underline{\hspace{2cm}}$

$2\sqrt{3} \cdot 4\sqrt{5} = \underline{\hspace{2cm}}$

Perform the indicated operations and simplify.

1. $\sqrt{5}\sqrt{7}$

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

3. $\sqrt{10}\sqrt{30}$

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

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

6. $2\sqrt{3}(2\sqrt{3} - 4\sqrt{5})$

7. $\sqrt{7}(4\sqrt{7} - 2\sqrt{3})$

8. $\sqrt{3}(\sqrt{6} - \sqrt{12})$

9. $3\sqrt{2}(\sqrt{2} - 4) + \sqrt{2}(5 - \sqrt{2})$

10. $(\sqrt{6} - 3)(\sqrt{6} + 4)$

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

12. $(5\sqrt{2} + 2)(2\sqrt{2} - 1)$

13. $(\sqrt{5} - 4)(\sqrt{5} + 4)$

14. $(5\sqrt{2} + 3)(\sqrt{2} - 3)$

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

Multiply and Divide Radical Homework

Name _____

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Perform the indicated operations. Simplify all answers completely.

1. $\sqrt{5} \sqrt{15}$

2. $\sqrt{14} \sqrt{35}$

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

4. $\sqrt{3}(\sqrt{27} - \sqrt{3})$

5. $\sqrt{2}(\sqrt{6} + \sqrt{10})$

6. $\sqrt{7}(3 - \sqrt{7})$

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

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

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

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

11. $4\sqrt{3}(2\sqrt{3} + 3\sqrt{7})$

12. $5\sqrt{3}(\sqrt{3} - 2) + \sqrt{3}(7 - \sqrt{3})$

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

14. $(2 + \sqrt{7})(8 + \sqrt{7})$

15. $(\sqrt{5} - \sqrt{7})(\sqrt{5} + \sqrt{7})$

16. $(\sqrt{2} - \sqrt{5})^2$

SOLUTIONS

Multiply and Divide Radical Expressions

$$2 \cdot 5 = \underline{10}$$

$$2 \cdot \sqrt{5} = \underline{2\sqrt{5}}$$

$$\sqrt{2} \cdot 5 = \underline{5\sqrt{2}}$$

$$\sqrt{2} \cdot \sqrt{5} = \underline{\sqrt{10}}$$

$$2\sqrt{3} \cdot 5 = \underline{10\sqrt{3}}$$

$$2\sqrt{3} \cdot \sqrt{5} = \underline{2\sqrt{15}}$$

$$2\sqrt{3} \cdot 4\sqrt{5} = \underline{8\sqrt{15}}$$

Perform the indicated operations and simplify.

1. $\sqrt{5}\sqrt{7}$

$$= \sqrt{35}$$

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

$$= 3\sqrt{7}$$

3. $\sqrt{10}\sqrt{30}$

$$= 10\sqrt{3}$$

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

$$= 4\sqrt{2} - 4\sqrt{7}$$

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

$$= 6\sqrt{5} - 5$$

6. $2\sqrt{3}(2\sqrt{3} - 4\sqrt{5})$

$$= 12 - 8\sqrt{15}$$

7. $\sqrt{7}(4\sqrt{7} - 2\sqrt{3})$

$$= 28 - 2\sqrt{21}$$

8. $\sqrt{3}(\sqrt{6} - \sqrt{12})$

$$= 3\sqrt{2} - 6$$

9. $3\sqrt{2}(\sqrt{2} - 4) + \sqrt{2}(5 - \sqrt{2})$

$$= 4 - 7\sqrt{2}$$

10. $(\sqrt{6} - 3)(\sqrt{6} + 4)$

$$= -6 + \sqrt{6}$$

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

$$= 8 - 2\sqrt{15}$$

12. $(5\sqrt{2} + 2)(2\sqrt{2} - 1)$

$$= 18 - \sqrt{2}$$

13. $(\sqrt{5} - 4)(\sqrt{5} + 4)$

$$= -11$$

14. $(5\sqrt{2} + 3)(\sqrt{2} - 3)$

$$= 1 - 12\sqrt{2}$$

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

$$= 29 + 12\sqrt{5}$$

SOLUTIONS

Multiply and Divide Radical Homework

Name _____

Class Time _____

Perform the indicated operations. Simplify all answers completely.

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

$$2. \quad \sqrt{14} \sqrt{35} \\ = 7\sqrt{10}$$

$$3. \quad \sqrt{2}(\sqrt{3} - \sqrt{5}) \\ = \sqrt{6} - \sqrt{10}$$

$$4. \quad \sqrt{3}(\sqrt{27} - \sqrt{3}) \\ = 6$$

$$5. \quad \sqrt{2}(\sqrt{6} + \sqrt{10}) \\ = 2\sqrt{3} + 2\sqrt{5}$$

$$6. \quad \sqrt{7}(3 - \sqrt{7}) \\ = 3\sqrt{7} - 7$$

$$7. \quad \sqrt{5}(3\sqrt{5} - 4\sqrt{3}) \\ = 15 - 4\sqrt{15}$$

$$8. \quad \sqrt{2}(\sqrt{2} - \sqrt{5}) \\ = 2 - \sqrt{10}$$

$$9. \quad \sqrt{2}(\sqrt{8} - \sqrt{32}) \\ = -4$$

$$10. \quad \sqrt{5}(3 + \sqrt{15}) \\ = 3\sqrt{5} + 5\sqrt{3}$$

$$11. \quad 4\sqrt{3}(2\sqrt{3} + 3\sqrt{7}) \\ = 24 + 12\sqrt{21}$$

$$12. \quad 5\sqrt{3}(\sqrt{3} - 2) + \sqrt{3}(7 - \sqrt{3}) \\ = 12 - 3\sqrt{3}$$

$$13. \quad (\sqrt{10} - 5)(\sqrt{10} + 2) \\ = -3\sqrt{10}$$

$$14. \quad (2 + \sqrt{7})(8 + \sqrt{7}) \\ = 23 + 10\sqrt{7}$$

$$15. \quad (\sqrt{5} - \sqrt{7})(\sqrt{5} + \sqrt{7}) \\ = -2$$

$$16. \quad (\sqrt{2} - \sqrt{5})^2 \\ = 7 - 2\sqrt{10}$$