Name: _____

MATH MONKS

Multiplying Binomials with Square Roots

Multiply.

1. $(x + \sqrt{5})(6\sqrt{5} + 2)$ = _____
2. $(2\sqrt{10} + \sqrt{8})(2\sqrt{8} - \sqrt{10})$ = _____
3. $(6\sqrt{4} + 3\sqrt{9})(6x\sqrt{4} + \sqrt{16})$ = _____
4. $(4x + \sqrt{2})(3x - 5\sqrt{2})$ = _____
5. $(w\sqrt{80} + 4)(\sqrt{4} + 2w)$ = _____
6. $(\sqrt{2w} + 8)(-\sqrt{18w} + 6)$ = _____
7. $(7\sqrt{8} + \sqrt{4})(\sqrt{3} + 1)$ = _____
8. $(-8\sqrt{20} + 2)(8 - \sqrt{5})$ = _____
9. $(3\sqrt{2} - 4\sqrt{5})(3\sqrt{2} - 4\sqrt{5})$ = _____
10. $(3\sqrt{6} - 6x)(3\sqrt{6} + 6x)$ = _____
11. $(4\sqrt{7} - \sqrt{a})(2\sqrt{5} - \sqrt{a})$ = _____
12. $(a + \sqrt{100})(-\sqrt{9} - a)$ = _____
13. $(r\sqrt{36} + 7)(\sqrt{2} + 8r)$ = _____
14. $(4\sqrt{3} + 3r\sqrt{2})(4\sqrt{3} + 3r\sqrt{2})$ = _____
15. $(3\sqrt{20} + 7\sqrt{5})(8\sqrt{5} + 3\sqrt{7})$ = _____
16. $(\sqrt{9} + x\sqrt{16})(x\sqrt{25} + \sqrt{81})$ = _____

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MATH MONKS

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Answers

$(x + \sqrt{5})(6\sqrt{5} + 2) = 2x(3\sqrt{5} + 1) + 30 + 2\sqrt{5}$

$(2\sqrt{10} + \sqrt{8})(2\sqrt{8} - \sqrt{10}) = 12\sqrt{5} - 4$

$(6\sqrt{4} + 3\sqrt{9})(6x\sqrt{4} + \sqrt{16}) = 252x + 84$

$(4x + \sqrt{2})(3x - 5\sqrt{2}) = 12x^2 - 17\sqrt{2}x - 10$

$(w\sqrt{80} + 4)(\sqrt{4} + 2w) = 8\sqrt{5}w^2 + 8w(1 + \sqrt{5}) + 8$

$(\sqrt{2w} + 8)(-\sqrt{18w} + 6) = -6w - 18\sqrt{2w} + 48$

$(7\sqrt{8} + \sqrt{4})(\sqrt{3} + 1) = 14\sqrt{6} + 14\sqrt{2} + 2\sqrt{3} + 2$

$(-8\sqrt{20} + 2)(8 - \sqrt{5}) = -130\sqrt{5} + 96$

$(3\sqrt{2} - 4\sqrt{5})(3\sqrt{2} - 4\sqrt{5}) = 98 - 24\sqrt{10}$

$(3\sqrt{6} - 6x)(3\sqrt{6} + 6x) = 54 - 36x^2$

$(4\sqrt{7} - \sqrt{a})(2\sqrt{5} - \sqrt{a}) = 8\sqrt{35} - 2\sqrt{a}\,(2\sqrt{7} + \sqrt{5}) + a$

$(a + \sqrt{100})(-\sqrt{9} - a) = -a^2 - 13a - 30$

$(r\sqrt{36} + 7)(\sqrt{2} + 8r) = 48r^2 + 56r + \sqrt{2}(6r + 7)$

$(4\sqrt{3} + 3r\sqrt{2})(4\sqrt{3} + 3r\sqrt{2}) = 18r^2 + 24\sqrt{6}r + 48$

$(3\sqrt{20} + 7\sqrt{5})(8\sqrt{5} + 3\sqrt{7}) = 520 + 39\sqrt{35}$

$(\sqrt{9} + x\sqrt{16})(x\sqrt{25} + \sqrt{81}) = 20x^2 + 51x + 27$