

Square Roots and Operations with Radicals

Worksheet

1. Perform the following operations and simplify all radicals:

a) $(\sqrt{2})(\sqrt{5})$ b) $(3\sqrt{2})(\sqrt{6})$ c) $(\sqrt{8})(\sqrt{6})$
d) $(\sqrt{8})\left(\sqrt{\frac{1}{2}}\right)$ e) $(2\sqrt{15})(3\sqrt{30})$ f) $(6\sqrt{2})(6\sqrt{18})$

2. Perform the following operations and simplify all radicals:

a) $3\sqrt{5} + 4\sqrt{5}$ b) $2\sqrt{7} + 7\sqrt{2}$ c) $14\sqrt{8} - 5\sqrt{8}$
d) $2\sqrt{11} + 7\sqrt{11} - 4\sqrt{11}$ e) $7\sqrt{6} + 4\sqrt{3} - 3\sqrt{6} + 2\sqrt{2}$ f) $\sqrt{8} + \sqrt{18}$
g) $\sqrt{75} - \sqrt{20}$ h) $\sqrt{27} + \sqrt{48} - 2\sqrt{3}$ i) $-5\sqrt{44} + 2\sqrt{99}$
j) $3\sqrt{72} + 2\sqrt{75} - 3\sqrt{27} + \sqrt{108}$ k) $\sqrt{250} - \sqrt{135} - \sqrt{40} + \sqrt{735}$

3. Perform the following operations and simplify radicals:

a) $(\sqrt{5} + \sqrt{3})(\sqrt{5} - \sqrt{3})$ b) $(\sqrt{6} + \sqrt{2})^2$
c) $(2\sqrt{5} + \sqrt{2})(\sqrt{3} + \sqrt{6})$ d) $(\sqrt{2} + \sqrt{6})(\sqrt{10} + \sqrt{3})$
e) $(\sqrt{8} - \sqrt{6})^2$