

Radicals & Conjugates

1. Express each of the following as a rational expression or in simplest radical form. Assume that the symbols x and y represent positive numbers.

a) $\sqrt{3}(\sqrt{7} - \sqrt{3})$

b) $(3 + \sqrt{2})^2$

c) $(2 + \sqrt{3})(2 - \sqrt{3})$

d) $(2 + 2\sqrt{5})(2 - 2\sqrt{5})$

e) $(\sqrt{7} - 3)(\sqrt{7} + 3)$

f) $(3\sqrt{2} + \sqrt{7})(3\sqrt{2} - \sqrt{7})$

g) $(x - \sqrt{3})(x + \sqrt{3})$

h) $(2x\sqrt{2} + y)(2x\sqrt{2} - y)$

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1. Express each of the following as a rational expression or in simplest radical form. Assume that the symbols x and y represent positive numbers.

a) $\sqrt{3}(\sqrt{7} - \sqrt{3})$

$$\sqrt{21} - 3$$

b) $(3 + \sqrt{2})^2$

$$11 + 6\sqrt{2}$$

c) $(2 + \sqrt{3})(2 - \sqrt{3})$

$$1$$

d) $(2 + 2\sqrt{5})(2 - 2\sqrt{5})$

$$-16$$

e) $(\sqrt{7} - 3)(\sqrt{7} + 3)$

$$-2$$

f) $(3\sqrt{2} + \sqrt{7})(3\sqrt{2} - \sqrt{7})$

$$11$$

g) $(x - \sqrt{3})(x + \sqrt{3})$

$$x^2 - 3$$

h) $(2x\sqrt{2} + y)(2x\sqrt{2} - y)$

$$8x^2 - y^2$$

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