Operations with Radicals

9/20

$x + x$

$2x$

$\sqrt{3} + \sqrt{3}$

$2\sqrt{3}$

Like Terms

- Same Index
- Same radicand

Simplify: $5\sqrt{2} + \sqrt{2}$

$6\sqrt{2}$

Simplify: $7 + 8\sqrt{3} + \sqrt{3}$

$7 + 9\sqrt{3}$

integer first

radical term second

Simplify: $\left(3-\sqrt{7}\right)-\left(8+4\sqrt{7}\right)$

Distribute -1

$3-\sqrt{7}-8-4\sqrt{7}$

collect like terms

$-5-5\sqrt{7}$

Simplify: $\sqrt{12}+\sqrt{32}+\sqrt{48}$

$\sqrt{4\cdot3}+\sqrt{16\cdot2}+\sqrt{16\cdot3}$

$2\sqrt{3}+4\sqrt{2}+4\sqrt{3}$

$6\sqrt{3}+4\sqrt{2}$

Simplify all Radicals

Collect like terms

Simplify: $\left(4+\sqrt{27}\right)-\left(-15+\sqrt{48}\right)$

$\sqrt{9\cdot 3}$ $\qquad$ $\sqrt{16\cdot 3}$

$(4+3\sqrt{3})-(-15+4\sqrt{3})$

$4+3\sqrt{3}+15-4\sqrt{3}$

$19-\sqrt{3}$

Simplify: $4\left(8+\sqrt{2}\right)$

$32+4\sqrt{2}$

Multiply

Radicals with the same index

Outside w/ outside

inside w/ inside

Simplify: $\sqrt{3}\left(7-\sqrt{6}\right)$

multiply

$7\sqrt{3}-\sqrt{18}$

simplify

$\sqrt{9\cdot 2}$

$7\sqrt{3}-3\sqrt{2}$