

A1

AKAR

bilangan apa yang dikuadratkan hasilnya $\Rightarrow \sqrt{\dots}$

$$\left. \begin{array}{l} \sqrt{81} = +9 \\ \quad \quad = -9 \end{array} \right\} \sqrt{81} = \pm 9$$

$$\sqrt{16} = \pm 4$$

$$\sqrt{9} = \pm 3$$

$$11^2 = 121$$

$$12^2 = 144$$

$$13^2 = 169$$

$$14^2 = 196$$

$$15^2 = 225$$

$$16^2 = 256$$

$$17^2 = 289$$

$$18^2 = 324$$

$$19^2 = 361$$

$$20^2 = 400$$

$$\sqrt{121} = \pm 11$$

$$\sqrt{144} = \pm 12$$

$$\sqrt{169} = \pm 13$$

$$\sqrt{196} = \pm 14$$

$$\sqrt{225} = \pm 15$$

$$\sqrt{256} = \pm 16$$

$$\sqrt{289} = \pm 17$$

$$\sqrt{324} = \pm 18$$

$$\sqrt{361} = \pm 19$$

$$\sqrt{400} = \pm 20$$

$$21^2 = 441$$

$$22^2 = 484$$

$$23^2 = 529$$

$$24^2 = 576$$

$$25^2 = 625$$

$$26^2 = 676$$

$$27^2 = 729$$

$$28^2 = 784$$

$$29^2 = 841$$

$$30^2 = 900$$

$$\sqrt{441} = \pm 21$$

$$\sqrt{484} = \pm 22$$

$$\sqrt{529} = \pm 23$$

$$\sqrt{576} = \pm 24$$

$$\sqrt{625} = \pm 25$$

$$\sqrt{676} = \pm 26$$

$$\sqrt{729} = \pm 27$$

$$\sqrt{784} = \pm 28$$

$$\sqrt{841} = \pm 29$$

$$\sqrt{900} = \pm 30$$

A2

penjumlahan akar

$$\sqrt{9} = \pm 3$$

$$\sqrt{6} = \pm 2,449489$$

$$\sqrt{2} + \sqrt{2} = 2 \times \sqrt{2} = 2\sqrt{2}$$

$$3\sqrt{2} + 4\sqrt{2} = 7\sqrt{2}$$

$$6\sqrt{2} + 9\sqrt{2} - 8\sqrt{2} = 7\sqrt{2}$$

$$6\sqrt{7} - 4\sqrt{3} + 7\sqrt{3} = 9\sqrt{3}$$

$$9\sqrt{2} + 2\sqrt{2} - 6\sqrt{2} =$$

$$7\sqrt{5} + 4\sqrt{5} - 3\sqrt{5} =$$

$$12\sqrt{7} - 3\sqrt{7} - 2\sqrt{7} =$$

$$15\sqrt{8} - 3\sqrt{8} + 9\sqrt{8} =$$

$$-25\sqrt{2} + 13\sqrt{2} + 9\sqrt{2} =$$

$$-75\sqrt{2} - 25\sqrt{2} + 50\sqrt{2} =$$

A3

perkalian akar

$$\begin{array}{l} \sqrt{4} \cdot \sqrt{4} = \sqrt{4 \cdot 4} = \sqrt{16} \\ \downarrow \quad \downarrow \\ 2 \cdot 2 = 4 \\ 4 = 4 \end{array}$$

$$\begin{array}{l} \sqrt{9} \cdot \sqrt{9} = \sqrt{9 \cdot 9} = \sqrt{81} \\ \downarrow \quad \downarrow \\ 3 \cdot 3 = 9 \\ 9 = 9 \end{array}$$

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

$$\sqrt{5} \cdot \sqrt{4} = \sqrt{20}$$

$$\sqrt{7} \cdot \sqrt{3} = \sqrt{21}$$

$$\sqrt{8} \cdot \sqrt{5} = \sqrt{40}$$

$$\sqrt{3} \cdot \sqrt{5} =$$

$$\sqrt{7} \cdot \sqrt{5} =$$

$$\sqrt{11} \cdot \sqrt{3} =$$

$$\sqrt{2} \cdot \sqrt{7} =$$

$$\sqrt{3} \cdot \sqrt{13} =$$

A 4.

Pembagian akar

$$\frac{\sqrt{16}}{\sqrt{4}} = \sqrt{\frac{16}{4}}$$

$$\frac{\sqrt{81}}{\sqrt{9}} = \sqrt{\frac{81}{9}}$$

$$\frac{4}{2} = \sqrt{4}$$

$$\frac{9}{3} = \sqrt{9}$$

$$2 = 2$$

$$3 = 3$$

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

$$\frac{\sqrt{64}}{\sqrt{16}} =$$

$$\frac{\sqrt{18}}{\sqrt{3}} = \sqrt{6}$$

$$\frac{\sqrt{32}}{\sqrt{4}} =$$

$$\frac{\sqrt{12}}{\sqrt{4}} = \sqrt{3}$$

$$\frac{\sqrt{18}}{\sqrt{8}} =$$

$$\frac{\sqrt{15}}{\sqrt{5}} = \sqrt{3}$$

$$\frac{\sqrt{24}}{\sqrt{12}} =$$

A5

penyederhanaan akar

$$\sqrt{4} = 2$$

$$\sqrt{4 \cdot 3} = \sqrt{4 \cdot \sqrt{3}} = 2\sqrt{3}$$

$$\sqrt{12} = 2\sqrt{3}$$

$$\sqrt{9} = 3$$

$$\sqrt{9 \cdot 2} = \sqrt{9 \cdot \sqrt{2}} = 3\sqrt{2}$$

$$\sqrt{18} = 3\sqrt{2}$$

$$\sqrt{16} = 4$$

$$\sqrt{16 \cdot 5} = \sqrt{16 \cdot \sqrt{5}} = 4\sqrt{5}$$

$$\sqrt{80} = 4\sqrt{5}$$

$$\sqrt{27} = \sqrt{9 \cdot 3} = 3\sqrt{3}$$

$$\sqrt{300} = \sqrt{100 \cdot 3} = 10\sqrt{3}$$

$$\sqrt{50} = \sqrt{25 \cdot 2} = 5\sqrt{2}$$

$$\sqrt{175} = \sqrt{25 \cdot 7} = 5\sqrt{7}$$

$$\sqrt{75} =$$

$$\sqrt{32} =$$

$$\sqrt{8} =$$

$$\sqrt{128} =$$

$$\sqrt{50} =$$

A 6

Rasionalisasi penyebut

$$\sqrt{3} \cdot \sqrt{3} = 3$$

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

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

$$\sqrt{a} \cdot \sqrt{a} = a$$

$$\frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3} = \frac{1}{3} \cdot \sqrt{3} = \frac{1}{3}\sqrt{3}$$

$$\frac{1}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{1}{5} \sqrt{5}$$

$$\frac{1}{\sqrt{7}} \cdot \frac{\sqrt{7}}{\sqrt{7}} = \frac{1}{7} \sqrt{7}$$

$$\frac{3}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{3}{\cancel{3}} \cdot \sqrt{3} = \sqrt{3}$$

$$\frac{5}{\sqrt{7}} \cdot \frac{\sqrt{7}}{\sqrt{7}} = \frac{5}{7} \sqrt{7}$$

$$\frac{2}{\sqrt{6}} =$$

$$\frac{8}{\sqrt{2}} =$$

$$\frac{3}{\sqrt{18}} =$$

$$\frac{9}{\sqrt{3}} =$$

$$\frac{4}{\sqrt{32}} =$$

$$\frac{36}{\sqrt{16}} =$$

A7

Rasionalisasi penyebut (lanjutan)

$$(\sqrt{3} + 3)(\sqrt{3} - 3) = 3 - 3\sqrt{3} + 3\sqrt{3} - 9 \\ = -6$$

$$(\sqrt{3} + 2)(\sqrt{3} - 2) = 3 - 4 = -1$$

$$(\sqrt{7} + 5)(\sqrt{7} - 5) = 7 - 25 = -18$$

$$(\sqrt{8} - 3)(\sqrt{8} + 3) = 8 - 9 = -1$$

$$\frac{1}{\sqrt{3} - 1} \cdot \frac{\sqrt{3} + 1}{\sqrt{3} + 1} = \frac{1}{2}(\sqrt{3} + 1)$$

$$\frac{1}{\sqrt{5} + 3} \cdot \frac{\sqrt{5} - 3}{\sqrt{5} - 3} = \frac{1}{-4}(\sqrt{5} - 3)$$

$$\frac{1}{2\sqrt{3} - 3} \cdot \frac{2\sqrt{3} + 3}{2\sqrt{3} + 3} = \frac{1}{12 - 9} (2\sqrt{3} + 3) = \frac{1}{3} (2\sqrt{3} + 3)$$

$$2\sqrt{3} \cdot 2\sqrt{3} = 4 \cdot 3 = 12$$

$$\frac{1}{5\sqrt{2} - 6} =$$

$$\frac{1}{3\sqrt{3} - 3} =$$

$$\frac{1}{\sqrt{7} - 9} =$$

$$\frac{1}{7\sqrt{2} - 3} =$$

A 8

Variansi aljabar

$$(2 + \sqrt{3})(3 + \sqrt{2}) = 6 + 2\sqrt{2} + 3\sqrt{3} + \sqrt{6}$$

$$(3 + \sqrt{3})(5 + \sqrt{3}) = 15 + 3\sqrt{3} + 5\sqrt{3} + 3 \\ = 18 + 8\sqrt{3}$$

$$(4 - \sqrt{2})(5 + \sqrt{2}) = 20 + 4\sqrt{2} - 5\sqrt{2} - 2 \\ = 18 - \sqrt{2}$$

$$(8 - \sqrt{5})(3 - \sqrt{5}) = 24 - 8\sqrt{5} - 3\sqrt{5} + 5 \\ = 29 - 11\sqrt{5}$$

$$(2 + \sqrt{3})(4 - \sqrt{3}) =$$
$$(3 + \sqrt{3})(2 + \sqrt{5}) =$$
$$(7 - \sqrt{2})(8 + \sqrt{2}) =$$
$$(9 - 3\sqrt{3})(2 + 2\sqrt{3}) =$$

$$\frac{\sqrt{3} - \sqrt{4}}{\sqrt{3} + \sqrt{4}} \cdot \frac{\sqrt{3} - \sqrt{4}}{\sqrt{3} - \sqrt{4}} = \frac{\sqrt{3} - \sqrt{4}}{\sqrt{3} + \sqrt{4}} \cdot \frac{\sqrt{3} - \sqrt{4}}{\sqrt{3} - \sqrt{4}}$$
$$= \frac{3 - 2\sqrt{12} + 4}{3 - 4} = \frac{7 - 2 \cdot 2\sqrt{3}}{-1}$$
$$= -(7 - 4\sqrt{3})$$

$$\frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}} =$$
$$\frac{2\sqrt{3} - \sqrt{7}}{2\sqrt{3} + \sqrt{7}} =$$