

1. Sederhanakan bentuk akar berikut ini:

1. $\sqrt{2} \times \sqrt{5}$
2. $\sqrt{3} \times \sqrt{7}$
3. $\sqrt{7} \times \sqrt{11}$
4. $\sqrt{11} \times \sqrt{15}$

Jawaban

1. $\sqrt{2} \times \sqrt{5} = \sqrt{(2 \times 5)} = \sqrt{10}$
2. $\sqrt{3} \times \sqrt{7} = \sqrt{(3 \times 7)} = \sqrt{21}$
3. $\sqrt{7} \times \sqrt{11} = \sqrt{(7 \times 11)} = \sqrt{77}$
4. $\sqrt{11} \times \sqrt{15} = \sqrt{(11 \times 15)} = \sqrt{165}$

2. Sederhanakan bentuk akar berikut ini:

1. $2\sqrt{2} \times 4\sqrt{3}$
2. $3\sqrt{5} \times 5\sqrt{7}$
3. $2\sqrt{3} \times 7\sqrt{2}$
4. $5\sqrt{11} \times 3\sqrt{15}$

Jawaban

1. $2\sqrt{2} \times 4\sqrt{3} = (2 \times 4) \sqrt{(2 \times 3)} = 8\sqrt{6}$
2. $3\sqrt{5} \times 5\sqrt{7} = (3 \times 5) \sqrt{(5 \times 7)} = 15\sqrt{35}$
3. $2\sqrt{3} \times 7\sqrt{2} = (2 \times 7) \sqrt{(3 \times 2)} = 14\sqrt{6}$
4. $5\sqrt{11} \times 3\sqrt{15} = (5 \times 3) \sqrt{(11 \times 15)} = 15\sqrt{165}$

3. Sederhanakan bentuk akar di bawah ini:

1. $(\sqrt{3} + \sqrt{2})(\sqrt{3} + \sqrt{2})$
2. $(\sqrt{3} + \sqrt{5})(\sqrt{3} + \sqrt{11})$
3. $(\sqrt{5} + \sqrt{3})(\sqrt{5} - \sqrt{3})$
4. $(\sqrt{3} - \sqrt{7})(\sqrt{3} - \sqrt{7})$
5. $(\sqrt{2} - \sqrt{7})(\sqrt{2} + \sqrt{7})$

Jawab.

$$1. (\sqrt{3} + \sqrt{2})(\sqrt{3} + \sqrt{2})$$

$$= \sqrt{3 \times 3} + \sqrt{3 \times 2} + \sqrt{2 \times 3} + \sqrt{2 \times 2}$$

$$= \sqrt{9} + \sqrt{6} + \sqrt{6} + \sqrt{4}$$

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

$$= 5 + 2\sqrt{6}$$

$$2. (\sqrt{3} + \sqrt{5})(\sqrt{3} + \sqrt{11})$$

$$= \sqrt{3 \times 3} + \sqrt{3 \times 11} + \sqrt{5 \times 3} + \sqrt{5 \times 11}$$

$$= \sqrt{9} + \sqrt{33} + \sqrt{15} + \sqrt{55}$$

$$= 3 + \sqrt{33} + \sqrt{15} + \sqrt{55}$$

$$3. (\sqrt{5} + \sqrt{3})(\sqrt{5} - \sqrt{3})$$

$$= \sqrt{5 \times 5} - \sqrt{5 \times 3} + \sqrt{3 \times 5} - \sqrt{3 \times 3}$$

$$= \sqrt{25} - \sqrt{15} + \sqrt{15} - \sqrt{9}$$

$$= 5 - \sqrt{15} + \sqrt{15} - 3$$

$$= 2$$

$$4. (\sqrt{3} - \sqrt{7})(\sqrt{3} - \sqrt{7})$$

$$= \sqrt{3 \times 3} - \sqrt{3 \times 7} - \sqrt{7 \times 3} + \sqrt{7 \times 7}$$

$$= \sqrt{9} - \sqrt{21} - \sqrt{21} + \sqrt{49}$$

$$= 3 - \sqrt{21} - \sqrt{21} + 7$$

$$= -4 - 2\sqrt{21}$$

$$5. (\sqrt{2} - \sqrt{7})(\sqrt{2} + \sqrt{7})$$

$$= \sqrt{2 \times 2} + \sqrt{2 \times 7} - \sqrt{7 \times 2} - \sqrt{7 \times 7}$$

$$= \sqrt{4} + \sqrt{14} - \sqrt{14} - \sqrt{49}$$

$$= 2 - 7$$

$$= -5$$

4. Sederhanakan contoh soal berikut:

$$\begin{aligned} & \sqrt{4} \times \sqrt{8} \\ &= \sqrt{4 \times 8} \\ &= \sqrt{32} = \sqrt{16 \times 2} = 4 \sqrt{2} \end{aligned}$$

5. Sederhanakan bentuk-bentuk berikut:

- a. $2\sqrt{3} \times 3\sqrt{2}$
- b. $4\sqrt{11} \times 2\sqrt{5}$
- c. $3\sqrt{7} \times 7\sqrt{3}$
- d. $2\sqrt{19} \times 10\sqrt{5}$

Penyelesaian:

- a. $2\sqrt{3} \times 3\sqrt{2} = (2 \times 3)\sqrt{3 \times 2} = 6\sqrt{6}$
- b. $4\sqrt{11} \times 2\sqrt{5} = (4 \times 2)\sqrt{11 \times 5} = 8\sqrt{55}$
- c. $3\sqrt{7} \times 7\sqrt{3} = (3 \times 7)\sqrt{7 \times 3} = 21\sqrt{21}$
- d. $2\sqrt{19} \times 10\sqrt{5} = (2 \times 10)\sqrt{19 \times 5} = 20\sqrt{95}$