

# TEST 2 Kareköklü Sayılar

$$1. \frac{\sqrt{9 \cdot 3} - 6}{2 - \sqrt{3}} = \frac{3\sqrt{3} - 6}{2 - \sqrt{3}}$$

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

Cevap: A

$$2. \sqrt{13 + \sqrt{11} - 2} = \sqrt{13 + \sqrt{9}}$$

$$= \sqrt{13 + 3} = \sqrt{16} = 4$$

Cevap: A

$$3. \sqrt{9 + \sqrt{2 - \sqrt{3} + 1}} = \sqrt{9 + \sqrt{2 - \sqrt{4}}}$$

$$= \sqrt{9 + \sqrt{2 - 2}} = \sqrt{9 + \sqrt{0}} = \sqrt{9} = 3$$

Cevap: B

$$4. \left( \frac{0,5}{\sqrt{0,20}} - \frac{0,15}{\sqrt{0,45}} \right) \cdot \sqrt{\frac{12,5}{0,4}}$$

$$= \left( \frac{0,5}{\sqrt{\frac{20}{100}}} - \frac{0,15}{\sqrt{\frac{45}{100}}} \right) \cdot \sqrt{\frac{25}{4}}$$

$$= \left( \frac{0,5}{\frac{2}{10} \cdot \sqrt{5}} - \frac{0,15}{\frac{3}{10} \cdot \sqrt{5}} \right) \cdot \frac{5}{2} \cdot \sqrt{5}$$

$$= \left( \frac{5}{2\sqrt{5}} - \frac{0,5}{\sqrt{5}} \right) \cdot \frac{5}{2} \cdot \sqrt{5}$$

$$= \left( \frac{5}{2\sqrt{5}} - \frac{1}{2\sqrt{5}} \right) \cdot \frac{5}{2} \cdot \sqrt{5}$$

$$= \frac{4}{2\sqrt{5}} \cdot \frac{5}{2} \cdot \sqrt{5} = 5$$

Cevap: D

$$5. \left( \frac{2}{\sqrt{5}} + 5\sqrt{5} - \sqrt{5} \right) : \frac{\sqrt{5}}{5}$$

$$= \left( \frac{2}{\sqrt{5}} + 4\sqrt{5} \right) : \frac{\sqrt{5}}{5}$$

$$= \frac{22}{\sqrt{5}} : \frac{\sqrt{5}}{5} = \frac{22}{\sqrt{5}} \cdot \frac{5}{\sqrt{5}}$$

$$= \frac{22 \cdot 5}{5} = 22$$

Cevap: B

$$6. \sqrt{0,12} + \sqrt{0,75} + \sqrt{0,03}$$

$$= \sqrt{\frac{4}{100} \cdot 3} = \sqrt{\frac{25}{100} \cdot 3} + \sqrt{\frac{3}{100}}$$

$$= \frac{2}{10} \cdot \sqrt{3} + \frac{5}{10} \cdot \sqrt{3} + \frac{1}{10} \cdot \sqrt{3}$$

$$= \sqrt{3} \left( \frac{2}{10} + \frac{5}{10} + \frac{1}{10} \right)$$

$$= \sqrt{3} \cdot \frac{8}{10} = \frac{4\sqrt{3}}{5}$$

Cevap: D

$$7. \sqrt{0,3} \cdot \sqrt{1,2} + \sqrt{0,09} - \sqrt{0,81} =$$

$$\begin{aligned} &= \sqrt{0,3 \cdot 1,2} + \sqrt{\frac{9}{100}} + \sqrt{\frac{81}{100}} \\ &= \sqrt{0,36} + \frac{3}{10} - \frac{9}{10} \\ &= \sqrt{\frac{36}{100}} + \frac{3-9}{10} = \frac{6}{10} - \frac{6}{10} = 0 \end{aligned}$$

Cevap: B

$$8. \sqrt{0,2 \cdot 1,8} + \sqrt{0,25} - \sqrt{1,21}$$

$$\begin{aligned} &= \sqrt{0,36} + \sqrt{0,25} - \sqrt{1,21} \\ &= \sqrt{\frac{36}{100}} + \sqrt{\frac{25}{100}} - \sqrt{\frac{121}{100}} \\ &= \frac{6}{10} + \frac{5}{10} - \frac{11}{10} = 0 \end{aligned}$$

Cevap: C

$$9. \sqrt{\frac{4}{10}} - \sqrt{\frac{144}{10}} + \sqrt{\frac{225}{10}} =$$

$$= \frac{2}{\sqrt{10}} - \frac{12}{\sqrt{10}} + \frac{15}{\sqrt{10}} = \frac{5}{\sqrt{10}}$$

Pay ve payda  $\sqrt{10}$  ile çarpılır:

$$\frac{5 \cdot \sqrt{10}}{\sqrt{10} \cdot \sqrt{10}} = \frac{5\sqrt{10}}{10} = \frac{\sqrt{10}}{2}$$

Cevap: C

$$10. \sqrt{2} \cdot \sqrt{2} \cdot \sqrt{2} = \sqrt{2 \cdot 2} \cdot \sqrt{2} = \sqrt{4} \cdot \sqrt{2} = 2\sqrt{2}$$

Cevap: B

$$11. 2\sqrt{2} \cdot 3\sqrt{3} \cdot \sqrt{6} =$$

$$\begin{aligned} &= 6\sqrt{2} \cdot \sqrt{3} \cdot \sqrt{6} \\ &= 6 \cdot \sqrt{2 \cdot 3 \cdot 6} = 6\sqrt{6 \cdot 6} \\ &= 6 \cdot \sqrt{36} = 6 \cdot 6 = 36 \end{aligned}$$

Cevap: A

$$12. \sqrt{\frac{1 \cdot 96 \cdot 27}{288 \cdot 3}} = \sqrt{\frac{1 \cdot 27}{3}} = \sqrt{9} = 3$$

Cevap: D

$$13. \sqrt{\frac{12 \cdot 10^2}{45}} = \sqrt{2 \cdot 2} = 2$$

Cevap: C

$$14. \frac{1}{\sqrt{2}+1} + \frac{1}{\sqrt{3}+\sqrt{2}} + \dots + \frac{1}{\sqrt{169}+\sqrt{168}}$$

ifadesinde her terimin pay ve paydasını, paydanın eşleniğiyle çarpalım:

$$\begin{aligned} &\frac{1 \cdot (\sqrt{2}-1)}{(\sqrt{2}+1) \cdot (\sqrt{2}-1)} + \frac{1 \cdot (\sqrt{3}-\sqrt{2})}{(\sqrt{3}+\sqrt{2}) \cdot (\sqrt{3}-\sqrt{2})} + \dots \\ &+ \frac{1 \cdot (\sqrt{169}-\sqrt{168})}{(\sqrt{169}+\sqrt{168}) \cdot (\sqrt{169}-\sqrt{168})} \end{aligned}$$

$$\begin{aligned} &\sqrt{2}-1 + \sqrt{3}-\sqrt{2} + \sqrt{4}-\sqrt{3} + \dots + \sqrt{169}-\sqrt{168} \\ &= -1 + \sqrt{169} = -1 + 13 = 12 \end{aligned}$$

Cevap: B

$$15. \frac{\sqrt{36 \cdot 2} - \sqrt{100 \cdot 2} + \sqrt{16 \cdot 2}}{\sqrt{25 \cdot 2}} =$$

$$\frac{6\sqrt{2} - 10\sqrt{2} + 4\sqrt{2}}{5\sqrt{2}} = \frac{0}{5\sqrt{2}} = 0$$

Cevap: B

$$16. \frac{\sqrt{3} - \frac{1}{\sqrt{3}}}{\sqrt{3} + \frac{1}{\sqrt{3}}} = \frac{\frac{2}{\sqrt{3}}}{\frac{4}{\sqrt{3}}} \cdot \frac{1}{1} \cdot \frac{1}{2} = \frac{1}{2}$$

Cevap: B

$$17. \frac{\sqrt{\frac{75}{10}} - \sqrt{\frac{12}{10}} + \sqrt{\frac{243}{10}}}{\sqrt{\frac{48}{10}}} =$$

$$\frac{5\sqrt{\frac{3}{10}} - 2\sqrt{\frac{3}{10}} + 9\sqrt{\frac{3}{10}}}{4\sqrt{\frac{3}{10}}}$$

$$= \frac{1 \cdot \sqrt{\frac{3}{10}} (5 - 2 + 9)}{4\sqrt{\frac{3}{10}}} = \frac{12}{4} = 3$$

Cevap: C

$$18. \sqrt{\frac{25}{100}} - \sqrt{121} + \sqrt{\frac{144}{100}}$$

$$= \frac{5}{10} - 11 + \frac{12}{10}$$

$$= \frac{17}{10} - 11 = 1,7 - 11 = -9,3$$

Cevap: C

$$19. \sqrt{\frac{49}{10}} + \sqrt{\frac{9}{10}} =$$

$$= \frac{7}{\sqrt{10}} + \frac{3}{\sqrt{10}} = \frac{10}{\sqrt{10}}$$

$$\Rightarrow \frac{10}{\sqrt{10}} \cdot \left( \frac{\sqrt{10}}{\sqrt{10}} \right) = \frac{10\sqrt{10}}{10} = \sqrt{10}$$

Cevap: C

$$20. \sqrt{\frac{40 \cdot 18}{80}} = \sqrt{9} = 3$$

Cevap: A