



مؤسسہ آموزش و مشاوره تحصیل الفا

Alfa Eğitim Enstitüsü

دفترچه سیرالات آزمون یوس

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Temel Kavramlar
Rasyonel Sayılar
Birinci Dereceden Denklemler
Üçü ifadeler
Köklü ifadeler
Çarpanlara Ayırma
Basit Eşitsizlik Ve Mutlak Değer
Doğal Sayılarda Çözümleme Ve Taban
Aritmetik
Savunlar
Oran Orantı
KÜMELER
KARTEZYEN ÇARPIM BAĞINTI VE
FONKSİYON
İŞLEM
MODÜLER ARİTMETİK
PROBLEMLER

IQ

MATEMATİK

GEOMETRİ

1.

$$\frac{a^2 - b^2 + 2a + 1}{a + 1 + b} = ?$$

- A) $a + 3b + 1$ B) $3a - b + 1$ C) $a - b + 1$
 D) $a - b + 3$ E) $a + b - 1$

2.

$$\frac{(x+1) \cdot a^x}{a^{x+1}} - \frac{1}{a} = ?$$

- A) $\frac{x}{a}$ B) $\frac{a}{x-a}$ C) $\frac{a^x - 1}{a}$
 D) $\frac{xa}{a^x}$ E) $\frac{x-1}{a^x}$

3.

$$\frac{\sqrt{30 + \sqrt{30 + \sqrt{30 \dots}}}}{\sqrt{42 - \sqrt{42 - \sqrt{42 \dots}}}} = ?$$

- A) $\frac{1}{2}$ B) $\frac{5}{7}$ C) $\frac{5}{6}$ D) 1 E) 5

4.

$$(ab-ba)(ab+ba) = 594 \cdot (a+b)$$

$$\Rightarrow \min(a^2+b^2) = ?$$

- A) 42 B) 50 C) 54 D) 61 E) 63

5.

$$\frac{1-x}{1-\sqrt{x}} = ?$$

- A) $\sqrt{x}$ B) $1 + \sqrt{x}$ C) $x\sqrt{x-1}$
 D) $x - \sqrt{x}$ E) $-1 - x\sqrt{x}$

6.

$$x = \frac{37}{36} + \frac{38}{37} + \frac{39}{38}$$

$$\Rightarrow \frac{35}{36} + \frac{36}{37} + \frac{37}{38} = ?$$

- A) $3-x$ B) $4-x$ C) $6-x$ D) $8-x$ E) $10-x$

7.

$$x = 1 + 3 + 3^2 + \dots + 3^{12}$$

$$y = 1 + 3x$$

$$\Rightarrow y - x = ?$$

- A) 3^{14} B) 3^{13} C) 3^{12} D) 3^{11} E) 3^{10}

8.

$$x = \sqrt{3} \quad y = \sqrt[3]{4} \quad z = \sqrt[6]{6}$$

$$? < ? < ?$$

- A) $z < x < y$ B) $y < z < x$ C) $x < z < y$
 D) $x < y < z$ E) $z < y < x$

9.

$$x > 0, \quad y > 0$$

$$x^2 + y^2 = 34, \quad 2y = \frac{30}{x}$$

$$(x + y)^2 = ?$$

- A) 4 B) $\sqrt{30}$ C) $\sqrt{34}$ D) 49 E) 64

10.

$$ab = 5(a+b) + 4$$

$$\Rightarrow \sum ab = ?$$

- A) 112 B) 124 C) 133 D) 142 E) 148

11.

$$\frac{1}{a} + \frac{1}{b} = \frac{5}{6}$$

$$\frac{1}{a} + \frac{1}{c} = \frac{7}{10}$$

$$\frac{1}{b} + \frac{1}{c} = \frac{8}{15}$$

$$\Rightarrow a+b+c = ?$$

- A) 10 B) 12 C) 14 D) 16 E) 20

12.

$$5^a = 7^b$$

$$\Rightarrow 5^{\frac{a^2+ab}{ab}} = ?$$

- A) 35 B) 30 C) 25 D) 20 E) 14

13.

$$\frac{2ax^2 + ax}{a^2x^3 - x} \cdot \frac{ax+1}{2x+1} = ?$$

A) $\frac{a}{ax-1}$

B) $\frac{1}{x-1}$

C) $\frac{ax+1}{ax^2+1}$

D) $\frac{2a}{x-1}$

E) $\frac{2+a}{ax-1}$

14.

$$1 - \frac{2}{1 + \frac{3}{1 + \frac{1}{5}}} + x = \frac{31}{8}$$

$$\Rightarrow x = ?$$

A) 7

B) 5

C) 4

D) 3

E) 2

15.

$$\sqrt[5]{(32 \cdot 10^{-5})^{2x-1}} = 125^x$$

$$x = ?$$

A) -1

B) 0

C) $\frac{1}{16}$

D) $\frac{1}{8}$

E) $\frac{1}{5}$

16.

$$a, b \in \mathbb{N}$$

$$10^a - b = 99998$$

$$\Rightarrow \min(a+b) = ?$$

A) 4

B) 5

C) 6

D) 7

E) 8

17.

$$\left(\frac{a+b}{a \cdot b}\right) \in \mathbb{Z}$$

$$\frac{1}{8} < a < \frac{1}{2}$$

$$-\frac{1}{3} < b < -\frac{1}{7}$$

$$\Rightarrow \max\left(\frac{a+b}{a \cdot b}\right) = ?$$

A) 11

B) 9

C) 7

D) 4

E) 2

18.

$$\frac{x-y}{x+y} \cdot \frac{4x+2y}{2x^2-xy-y^2} = ?$$

A) $\frac{x-y}{2x+y}$

B) $\frac{2x+y}{x+y}$

C) $\frac{2}{x+y}$

D) $\frac{1}{2x-y}$

E) $\frac{x-y}{2x-y}$

19.

$$A = \{1, 2, 3, 4, 5\}$$

$$B = \{x \in \mathbb{Z} \mid |x| \leq 1\}$$

$$\Rightarrow n(A \cap (A' \cup B')) = ?$$

A) 3

B) 4

C) 5

D) 6

E) 7

20.

$$\frac{a \cdot (a - 2) - a + 2}{a - 1} = ?$$

A) $a - 1$ B) $a - 2$ C) $a + 1$ D) $1 - a$ E) $2a + 1$

21.

$$\frac{15^x}{3^x} + \frac{45^x}{9^x} = 50$$

$$\Rightarrow x = ?$$

A) $\frac{1}{2}$

B) 1

C) 2

D) 4

E) 8

22.

$$\frac{\frac{\sqrt{2}}{\sqrt{2} - \frac{1}{\sqrt{2}}}}{\frac{1}{\sqrt{2}} - \sqrt{2}} = ?$$

A) $\frac{1}{2}$ B) $\frac{\sqrt{2}}{2}$ C) $\frac{3}{2}$ D) $\frac{3\sqrt{2}}{2}$ E) $\frac{5}{2}$

23.

$$\frac{2^{-2}}{4^{-1} + \frac{1}{\frac{1}{3}}} = ?$$

A) $\frac{1}{15}$ B) $\frac{1}{13}$ C) $\frac{1}{12}$ D) $\frac{1}{10}$ E) $\frac{1}{7}$

24.

$$f(x-2) = \frac{3x+1}{2}$$

$$\Rightarrow f^{-1}(5) = ?$$

A) -1

B) 0

C) 1

D) 2

E) 3

25.

$$\frac{a^6 + 64}{a^2 + 4} = ?$$

- A) $a^4 - 4a^2 + 16$ B) $a^4 + 4a^2 + 16$
 C) $a^4 - 8a^2 + 16$ D) $a^4 + 8a^2 + 16$
 E) $a^4 + 16$

26.

$$\frac{6a^2 + 13ab + 6b^2}{2a + 3b} = ?$$

- A) $2(3b + a)$ B) $3(a + b)$ C) $3a + 6b$
 D) $3a + 2b$ E) $3a - 2b$

27.

$$\left(1 - \frac{1}{2^2}\right) \cdot \left(1 - \frac{1}{3^2}\right) \cdot \left(1 - \frac{1}{4^2}\right) \cdots \left(1 - \frac{1}{15^2}\right)$$

- A) $\frac{8}{15}$ B) $\frac{7}{15}$ C) $\frac{2}{5}$ D) $\frac{4}{15}$ E) $\frac{1}{5}$

28.

$$\sqrt{x + \sqrt{x + \sqrt{x + \dots}}} = \sqrt[3]{4 \cdot \sqrt[3]{4 \cdot \sqrt[3]{4 \dots}}}$$

$$x = ?$$

- A) 1 B) 2 C) 3 D) 4 E) 8

29.

$$\frac{x^2 + 5x + 6}{x^3 + x^2 - 2x} \cdot \frac{x^3 - x}{x^2 + 6x + 5} = ?$$

- A) $\frac{x+5}{x-1}$ B) $\frac{x-3}{x+1}$ C) $\frac{x-2}{x+2}$
 D) $\frac{x+1}{x+3}$ E) $\frac{x+3}{x+5}$

30.

$$\left(\frac{1}{3}x - \frac{3}{4}\right)^2 = ?$$

- A) $\frac{x^2}{3} - \frac{x}{2} + \frac{9}{16}$ B) $\frac{x^2}{3} - \frac{x}{12} + \frac{3}{4}$
 C) $\frac{x^2}{9} + \frac{x}{4} - \frac{9}{16}$ D) $\frac{x^2}{9} - \frac{x}{2} + \frac{9}{16}$
 E) $\frac{x^2}{9} - \frac{x}{12} - \frac{9}{18}$

31.

$$\frac{y.z}{x} = 2, \quad \frac{x.z}{y} = 3, \quad \frac{x.y}{z} = 4$$

$$\Rightarrow x^2 + y^2 + z^2 = ?$$

- A) 30 B) 28 C) 27 D) 26 E) 24

32.

$$a + b = \frac{1}{6}$$

$$\frac{(a-b)^2 + ab}{3a^3 + 3b^3} = ?$$

- A) 1 B) 2 C) 3 D) 4 E) 6

33.

$$4xf(x) - 5f(x) = 2 - x$$

$$\Rightarrow f^{-1}(x) = ?$$

- A) $\frac{5x+2}{4x+1}$ B) $\frac{5x-2}{4x+1}$ C) $\frac{5x+2}{4x-1}$
D) $\frac{4x-2}{5x+1}$ E) $\frac{4x+2}{5x-1}$

34.

$$\left(-\frac{4}{3}\right)^{36} \equiv x \pmod{11}$$

$$\Rightarrow x = ?$$

- A) 9 B) 6 C) 5 D) 4 E) 3

35.

$$\frac{a^3 - b^3}{a^2b + ab^2 + b^3} \cdot \frac{2b^2 + 2ab}{a^2 - b^2} = ?$$

A) $\frac{2b}{a^2 + ab + b^2}$

B) $\frac{2(a+b)}{ab}$

C) $\frac{2}{ab}$

D) 2a

E) 2

36.

$$(9, 2 + 4, 2)^2 - 4.(9, 2).(4, 2) = ?$$

- A) 4 B) 9 C) 16 D) 25 E) 36

37.

$$\sqrt[4]{\frac{1}{2}} \cdot \sqrt[4]{\frac{2}{3}} \cdot \sqrt[4]{\frac{3}{5}} \cdot \sqrt[4]{\frac{5}{4}} = ?$$

- A) $\frac{1}{2}$ B) $\frac{5}{2}$ C) 2 D) $\frac{\sqrt{2}}{2}$ E) 1

38.

$$\frac{4^x - 2^x + 8^x - 1}{2^x + 1} = 15$$

$$\Rightarrow x = ?$$

- A) $-\frac{1}{2}$ B) -1 C) $\frac{1}{2}$ D) 1 E) 2

39.

$$3x - 5y = 81$$

$$ax + 5y = 100$$

$$\text{ÇK(SS)} = \emptyset \Rightarrow a = ?$$

- A) -3 B) -1 C) 0 D) 1 E) 3

40.

$$x + \frac{1}{6x} = 3$$

$$\left(x - \frac{1}{6x}\right)^2 = ?$$

- A) $\frac{23}{3}$ B) $\frac{25}{3}$ C) $\frac{28}{3}$
 D) $\frac{29}{3}$ E) $\frac{31}{3}$

41.

$$x, y, z \in \mathbb{R}^+$$

$$x \cdot y = \frac{9}{2}$$

$$x \cdot z = \frac{5}{2}$$

$$y \cdot z = \frac{5}{4}$$

$$\Rightarrow x = ?$$

- A) $\frac{2}{3}$ B) 1 C) 2 D) 3 E) 4

42.

$$\frac{\sqrt{15} + \sqrt{20} + \sqrt{21} + \sqrt{28}}{\sqrt{7} + \sqrt{5}} = ?$$

- A) $2 + \sqrt{5}$ B) $2 + \sqrt{3}$ C) $\sqrt{5} + \sqrt{7}$
 D) $\sqrt{7} - 2$ E) $\sqrt{7} - \sqrt{5}$

43.

$$\frac{x}{4} = \frac{y}{3} = \frac{9}{x-y}$$

$$\Rightarrow x^2 - y^2 = ?$$

- A) 42 B) 54 C) 60 D) 63 E) 72

44.

$$f: \mathbb{R} \rightarrow \mathbb{R}$$

$$f(x) = \frac{x-5}{7}$$

$$f^{-1}(f(f^{-1}(-2))) = a$$

$$\Rightarrow a = ?$$

- A) -4 B) -5 C) -6 D) -8 E) -9

45.

$$(0,75)^2 - (0,75) \cdot (0,5) - (0,25)^2 = ?$$

- A) 0,125 B) 0,25 C) 0,5 D) 0,75 E) 1

46.

$$a, b \in \mathbb{Z}^+$$

$$\frac{a}{b} = \frac{5}{8}$$

$$\Rightarrow \frac{\sqrt{5a} + \sqrt{8b}}{\sqrt{8b} - \sqrt{5a}} = ?$$

- A) $\frac{13}{3}$ B) 4 C) $\frac{10}{3}$ D) 3 E) $\frac{8}{3}$

47.

$$f^{-1}(3x+5) = g^{-1}(2x+7)$$

$$\Rightarrow (g \circ f^{-1})(17) = ?$$

- A) 15 B) 16 C) 17 D) 18 E) 20

48.

$$\sqrt[4]{2^{16} + 2^{19}} = ?$$

- A) 16 B) $16\sqrt{2}$ C) $4\sqrt{2}$ D) 48 E) $16\sqrt{3}$

49.

$$\frac{x}{a} = \frac{y}{b} = \frac{2}{3}$$

$$a^2 + b^2 = 45$$

$$\Rightarrow x^2 + y^2 = ?$$

A) 16

B) 18

C) 20

D) 24

E) 28

50.

$$\frac{2^{24} (3^{44} - 3^{22})}{6^{22} (3^{11} + 1)(3^{11} - 1)} = ?$$

A) 2

B) 3

C) 4

D) 5

E) 6