ÜNİVERSİTEYE HAZIRLIK
MATEMATİK: A-3

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A. *Aşağıdaki ifadeleri rasyonel sayılar kümesinde çarpanlara ayırınız.*

1. a^2b+ab^2-ab

2. $x^{n+2}+x^{n+1}-x^n$

3. $a(b-c)+b(c-b)$

4. $(x+y)^2-x-y$

5. $ax-by+bx-ay$

6. $6ab-4a-3b+2$

7. $a^2-bc+ab-ac$

8. x^3+x^2+x+1

9. $a(x^2+1)-x(a^2+1)$

10. $(x-y)^2-1$

11. $2a^5b^3-8a^3b$

12. $a^3+a^2b-ab^2-b^3$

13. x^3-x^2-x+1

14. a^3+a^2-4a-4

15. 9^x-4

16. $a^{2x+y}-a^{3y}$

17. $6a^2b^2c-54c^3$

18. $x^2-y^2-ax+ay$

19. $a(a-1)-x(x-1)$

20. $12a^2(a-b)^2-3(b-a)^2$

21. $(a^2-a)^2-(a-1)^2$

22. $a^2(b+1)-b^2(a+1)$

23. $ab(x^2+y^2)-xy(a^2+b^2)$

24. $(a^2-b^2)^2-(a+b)^2$

25. $a^{2m+1}-4a$

26. $9^{x+1}-9$

27. $a^2+b^2-2ab-4$

28. $x(x-2y)+(y+1)(y-1)$

29. $4a^2b^2-9a^2-4b^2+9$

30. $4^x+2^{x+1}+1$

31. x^4-1

32. $a^2+b^2-2a+2b-2ab$

33. $(a+b)^2-4ab+3a-3b$

34. a^2-4b^2-2a+1

35. $4^{2x}-4^x-2^{2x+2y}+2^{2y}$

36. $a^{2m}-2a^mb^n+b^{2n}-c^{2p}$

37. ab^4+a^4b

38. $a^3b^2+8b^5$

39. x^4+x^3-x-1

40. x^6-y^6

41. $1-x^8$

42. $x^3+y^3-xy(x+y)$

43. x^6+y^6

44. x^4+4y^4

45. $a^4+b^4+a^2b^2$

46. $2a^2-5a+3$

47. $3a^2b^2-7ab+2$

48. $a^2+6ab-16b^2$

49. $x^2y^2-xyz-12z^2$

50. 4^x+2^x-2

51. $9^{x+1}-3^{x+2}-54$

52. $(x^2-4x+2)^2-4$

53. x^6+7x^3-8

54. $abx^2+(2a-3b)x-6$

55. $abx^2+xy(a-b)-y^2$

56. $4a^4-5a^2-9$

57. $x^2-2x-3+ax-3a$

58. $(x^2+3)^2-(x^2-5x)^2$

59. $(x^2+2)^2-4(2x-1)^2$

60. $x^2-y^2-2x+4y-3$

B. *Aşağıdaki işlemleri yapınız ve sonucu en sade biçimde yazınız.*

1. $\dfrac{x^3+x^2y-4x-4y}{x^2+xy-2x-2y}=?$

2. $\dfrac{x^3+8}{2x-6}\cdot\dfrac{6x^2-54}{x^2+3x+2}:\dfrac{3x^2-6x+12}{x+1}=?$

3. $\dfrac{x^2-xy-2y^2}{x^2-y^2}:\dfrac{x^2-x-2xy+2y}{x-1}=?$

4. $\dfrac{a^{24}+b^{24}}{a^{16}-a^8b^8+b^{16}}=?$

5. $\dfrac{x^6+1}{x^4-1}:\dfrac{x^4-x^2+1}{x^2-1}=?$

6. $\dfrac{(x^2+3x+2)\cdot(x^2+2x+1)}{(x+1)^3+(x+1)^4}=?$

7. $\dfrac{x^2-3x-4}{9-x^2}\cdot\dfrac{ax^2-3ax}{x^2-1}:\dfrac{ax-4a}{x^2+2x-3}=?$

8. $\left(\dfrac{1}{x}-1\right):\left(x+1-\dfrac{x+1}{x}\right)=?$

9. $\dfrac{x-2x^2}{2x^2-7x+3}:\dfrac{4-x^2}{x^2-5x+6}=?$

10. $\left(\dfrac{a^2}{b^3}+\dfrac{1}{a}\right):\left(\dfrac{a}{b^2}-\dfrac{1}{b}+\dfrac{1}{a}\right)=?$

11. $\dfrac{a^2\cdot b-ab^2}{b^2-ab}+\dfrac{a+1}{1+\dfrac{1}{a}}=?$

12. $\left[x-y-\dfrac{(x+y)^2}{x-y}\right]:\left(1+\dfrac{y+x}{y-x}\right)=?$

13. $\dfrac{x}{x-1}-\dfrac{1}{2-x}+\dfrac{x}{x^2-3x+2}=?$

14. $\dfrac{3a-1}{a^2-a}-\dfrac{1}{a^2+a}-\dfrac{3a+1}{a^2-1}=?$

15. $\left(\dfrac{x+x^2}{1-x}-\dfrac{x-x^2}{1+x}\right)\cdot\left(\dfrac{1}{4}+\dfrac{1}{4x}-\dfrac{1}{2x^2}\right)=?$

16. $\left(\dfrac{x-y}{xy}+\dfrac{y-z}{xz}+\dfrac{z-x}{yz}\right)\cdot\dfrac{xyz}{y-x}=?$

17. $\left(\dfrac{a}{a^2-4}-\dfrac{8}{a^2+2a}\right)\cdot\dfrac{a^2-2a}{a-4}+\dfrac{a+8}{a+2}=?$

18. $\dfrac{a}{(a-b)(a-c)}+\dfrac{b}{(b-c)(b-a)}-\dfrac{c}{(c-a)(c-b)}=?$

19. $\left[\dfrac{a+3b}{(a-b)^2}+\dfrac{a-3b}{a^2-b^2}\right]:\dfrac{a^2+3b^2}{(a-b)^2}=?$

20. $\dfrac{x}{ax-2a^2}-\dfrac{2}{x^2+x-2ax-2a}\cdot\left(1+\dfrac{3x+x^2}{3+x}\right)=?$

A.

1. $ab(a+b-1)$

2. $x^n(x^2+x-1)$

3. $(a-b)(b-c)$

4. $(x+y)(x+y-1)$

5. $(a+b)(x-y)$

6. $(3b-2)(2a-1)$

7. $(a+b)(a-c)$

8. $(x+1)(x^2+1)$

9. $(a-x)(1-ax)$

10. $(x-y-1)(x-y+1)$

11. $2a^3b(ab-2)(ab+2)$

12. $(a-b)(a+b)^2$

13. $(x+1)(x-1)^2$

14. $(a+1)(a-2)(a+2)$

15. $(3^x-2)(3^x+2)$

16. $a^y(a^x-a^y)(a^x+a^y)$

17. $6c(ab-3c)(ab+3c)$

18. $(x-y)(x+y-a)$

19. $(a-x)(a+x-1)$

20. $3(a-b)^2(2a-1)(2a+1)$

21. $(a+1)(a-1)^3$

22. $(a-b)(a+b+ab)$

23. $(ax-by)(bx-ay)$

24. $(a+b)^2(a-b+1)(a-b-1)$

25. $a(a^m-2)(a^m+2)$

26. $9(3^x-1)(3^x+1)$

27. $(a-b-2)(a-b+2)$

28. $(x-y-1)(x-y+1)$

29. $(a-1)(a+1)(2b-3)(2b+3)$

30. $(2^x+1)^2$

31. $(x-1)(x+1)(x^2+1)$

32. $(a-b)(a-b-2)$

33. $(a-b)(a-b+3)$

34. $(a-2b-1)(a+2b-1)$

35. $(2^x-1)(2^x+1)(2^x-2^y)(2^x+2^y)$

36. $(a^m-b^n-c^p)(a^m-b^n+c^p)$

37. $ab(a+b)(a^2-ab+b^2)$

38. $b^2(a+2b)(a^2-2ab+4b^2)$

39. $(x+1)(x-1)(x^2+x+1)$

40. $(x-y)(x+y)(x^2-xy+y^2)(x^2+xy+y^2)$

41. $(1-x)(1+x)(1+x^2)(1+x^4)$

42. $(x+y)(x-y)^2$

43. $(x^2+y^2)(x^4-x^2y^2+y^4)$

44. $(x^2-2xy+2y^2)(x^2+2xy+2y^2)$

45. $(a^2-ab+b^2)(a^2+ab+b^2)$

46. $(a-3)(2a-1)$

47. $(ab-2)(3ab-1)$

48. $(a-2b)(a+8b)$

49. $(xy+3z)(xy-4z)$

50. $(2^x-1)(2^x+2)$

51. $9(3^x-3)(3^x+2)$ veya $27(3^{x-1}-1)(3^x+2)$

52. $x(x-4)(x-2)^2$

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53. $(x-1)(x+2)(x^2+x+1)(x^2-2x+4)$

54. $(ax-3)(bx+2)$

55. $(ax-y)(bx+y)$

56. $(2a-3)(2a+3)(a^2+1)$

57. $(x-3)(x+a+1)$

58. $(x-1)(2x-3)(5x+3)$

59. $x(x+4)(x-2)^2$

60. $(x-y+1)(x+y-3)$

B.

1. $x+2$

2. $x+3$

3. $\frac{1}{x-y}$

4. a^8+b^8

5. 1

6. 1

7. $-x$

8. $\frac{-1}{x+1}$

9. $\frac{x}{x+2}$

10. $\frac{a+b}{b}$

11. 0

12. $2x$

13. $\frac{x+1}{x-2}$

14. 0

15. $\frac{-x-2}{x+1}$

16. $x+y-2z$

17. 2

18. $\frac{2c}{(b-c)(c-a)}$

19. $\frac{2}{a+b}$

20. $\frac{1}{a}$