GALATA YAYINLARI

YÖS

Yeni Tarz Sorular | New Style Questions

MATEMATİK 2
Mathematics

Soru Bankası / Question bank

İÇİNDEKİLER

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ÜNİTE 1

Unit 1

Polinom / Polynomial

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1. Aşağıda verilen fonksiyonlardan hangileri polinom-dur?

Which of the following functions are polynomial?

   I. $f(x) = x^2 + 5x - 3$

   II. $g(x) = \sqrt{x} + 7$

   III. $h(x) = \sqrt{2} \cdot x + 3$

   IV. $t(x) = 0$

   A) $f(x)$ B) $f(x), t(x)$ C) $t(x)$

   D) $f(x), h(x), t(x)$ E) $h(x), t(x)$

2. $P(x) = x^{\frac{6}{n}} - 2x^{n-4} + 58$

   P(x) polinom ise n kaçtır?

   If P(x) is a polynomial what is the value of n?

   A) 12   B) 6   C) 3   D) 2   E) 1

3. $P(x) = 8 \cdot x^{n-5} + 3x^{8-n} + 1$

   P(x) polinom ise n kaç farklı değer alır?

   If P(x) is a polynomial how many different values could "n" take?

   A) 6   B) 5   C) 4   D) 3   E) 2

4. $P(x) = 2x^8 + 9x^3 - 5$

   der $[P(x)]$ = ?

   A) 9   B) 8   C) 5   D) 2   E) – 5

5. $P(x) = x^{\frac{7n+10}{n}} + x^2 + 5$

   P(x) polinom ise n kaç farklı değer alır?

   If P(x) is a polynomial how many different values could "n" take?

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

6. $P(x) = 4x + k - 1$

   $P(1) = 13$

   $\Rightarrow k = ?$

   A) 10   B) 8   C) 6   D) 5   E) 4

7. $P(2x + 1) = x^2 + x + 1$

   $\Rightarrow P(1) + P(7) = ?$

   A) 60   B) 45   C) 30   D) 15   E) 14

8. $P(x^3) = 5x^9 + x^6 - 3x^3 + 1$

   $\Rightarrow P(2) = ?$

   A) 44   B) 40   C) 39   D) 38   E) 10

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9. $P(x) = 3x^{a-b} + x^2 + x^{b-a} + 2$

P(x) polinom ise $P(a - b + 1) = ?$

P(x) is a polynomial $P(a - b + 1) = ?$

A) 3   B) 5   C) 6   D) 7   E) 10

13. $P(x, y) = x^2 - 2xy + y^2$

$\Rightarrow P(37, 27) = ?$

A) 370   B) 120   C) 100   D) 37   E) 27

10. $P(x^2) = (m - 3)x^5 + (m - 1)x^4 + 3$

P(x) bir polinom ise $P(-2) = ?$

P(x) is a polynomial $P(-2) = ?$

A) 35   B) 33   C) 22   D) 20   E) 11

14. $P(x - 2) = 2x^2 + 3x - 4$

P(5x – 3) polinomunun katsayılar toplamı kaçtır?

What is the sum of coefficients of P(5x – 3) polynomial?

A) 40   B) 38   C) 35   D) 33   E) 30

11. $P(x) = x^3 + 3x^2 + 3x + 3$

$\Rightarrow P\left(\sqrt[3]{7} - 1\right) = ?$

A) 10   B) 9   C) 8   D) 7   E) 6

15. $P(x + 2) = 3x^2 + 12x + 1$

$\Rightarrow P\left(\sqrt{3}\right) = ?$

A) – 2   B) 0   C) 1   D) 2   E) $\sqrt{3}$

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12. $P(x) = (b + 2)x^2 + (a - b + 5)x + a \cdot b$

P(x) polinomu sabit bir polinom belirttiğine göre, P(2020) değeri kaçtır?

As the polynomial of P(x) is a constant polynomial, what is the value of P(2020)?

A) 2020   B) 14   C) 7   D) – 7   E) – 14

16. $P(3x - 2) = x^3 - 3x^2 - 4$

P(x + 1) polinomunun sabit terimi kaçtır?

What is the constants term of P(x + 1) polynomial?

A) – 4   B) – 9   C) – 8   D) – 7   E) – 6

1. $A, B \in R$

$$\frac{6x - 10}{x^2 - 6x + 5} = \frac{A}{x - 5} + \frac{B}{x - 1}$$

$\Rightarrow$ **A = ?**

A) 6   B) 5   C) 4   D) 2   E) 1

2. $P(x) + Q(x) = x^5 - x^4 - 2x + 5$

$Q(-x) = -x^5 - 2x^4 - x + 3$

$\Rightarrow$ **P(x) = ?**

A) $x^4 - 3x + 2$ B) $-x^4 - 3x + 2$

B) $x^4 + 3x - 2$ D) $-x^4 + 3x + 1$

           E) $-x^4 + 3x + 2$

3.

$\boxed{1} \rightarrow 3$

$\boxed{2} \rightarrow 7$

$\boxed{3} \rightarrow 13$

$\vdots$

$\boxed{x} \rightarrow P(x)$

$\Rightarrow P(x) + P(\boxed{2}) = ?$

A) $x^2 + x + 8$ B) $x^2 - x - 8$

B) $x^2 - x + 58$ D) $x^2 + x + 11$

           E) $x^2 + x + 58$

4. $P(x) = Ax^3 + Bx^2 + Cx + D$

$P(1) = P(3) = P(-1) = 0$

$P(0) = 3$

$\Rightarrow$ **P(2) = ?**

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

5. $(3x - 1)^4 = Ax^4 + Bx^3 + Cx^2 + Dx + E$

$\Rightarrow$ **A + C + E = ?**

A) 130   B) 134   C) 136   D) 140   E) 150

6. $P(x) = (x + 2)^4 + 3(x + 1)^3$

$P(x) = a_4 \cdot x^4 + a_3 \cdot x^3 + a_2 \cdot x^2 + a_1 \cdot x + a_0$

$\Rightarrow$ **$a_1 = ?$**

A) 41   B) 39   C) 37   D) 35   E) 33

7. $a, b \in Z^+$

$P(x) = (x + a) \cdot (x + b)$

$P(1) = 15$

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

A) 6   B) 7   C) 8   D) 9   E) 10

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8. $P(x) = 3x^2 + mx + n$

$P(1) - P(0) = 2$

$\Rightarrow$ **P(2) − P(1) = ?**

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

9. $(x^2 + 1)^4 \cdot (x + 1)^2 = ax^9 + bx^8 + \ldots + mx^4 + \ldots + k$

$\Rightarrow$ **m = ?**

A) 5   B) 10   C) 15   D) 20   E) 25

10. $\text{der}\left[P(x) \cdot Q(x)\right] = 10$

$\text{der}\left[\dfrac{P(x)}{Q(x)}\right] = 4$

$\Rightarrow$ $\text{der}\left[x^2 \cdot P(x) + x \cdot Q(x)\right] = ?$

A) 13   B) 11   C) 9   D) 8   E) 7

11. Pozitif katsayılı P(x) polinomu

P(x) positive coefficient polynomial

$P(x) \cdot P(3x) = 12x^2 - 8x + 1$

$\Rightarrow$ **P(x) = ?**

A) 2x + 1   B) x + 2   C) x − 2

D) 2x − 1   E) 2x − 2

12.

$$\begin{array}{r|l} x^6 - 3x^3 + a & \underline{x - 1} \\ \underline{-} & \\ 0 & \end{array}$$

$\Rightarrow$ **a = ?**

A) − 2   B) − 1   C) 0   D) 1   E) 2

13. $\text{der}\left[P(x)\right] = 3$

$\Rightarrow$ $\text{der}\left[P^2(x^3)\right] = ?$

A) 81   B) 18   C) 12   D) 8   E) 3

14. $P(x) = 2x^{10} - x^5 + k$

$$\begin{array}{r|l} P(x) & \underline{x^5 - 3} \\ \underline{-} & \\ 4 & \end{array}$$

$\Rightarrow$ **k = ?**

A) 11   B) 5   C) 3   D) − 11   E) − 21

15. P(x) polinom,

P(x) polynomial

$P(x) = x^3 - 2x^2 + \dfrac{a + 1}{x}$

$\Rightarrow$ **P(a) = ?**

A) 3   B) 1   C) − 3   D) − 1   E) 0

1. $3x^3 - 2x^2 + x + 1 \equiv P(x) \; [\text{mod}(x^2 + 1)]$

$\Rightarrow$ **P(x) = ?**

A) $- 2x - 3$ B) $- 2x + 3$ C) $2x - 3$

         D) $2x + 3$ E) 1

2. $\text{der}\,[P(x)] = 5$

      $\text{der}\,[Q(x)] = 7$

$\Rightarrow$ **der $[x^2 \cdot P(x) + x \cdot Q(x^2)]$ = ?**

A) 14   B) 15   C) 16   D) 17   E) 18

3. $\forall x \in R$

     $3x - 5 = a(x^2 - 1) + bx(x - 1) - c(x + 1)$

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

A) 1   B) 3   C) 4   D) 5   E) 7

4.

$$P(x) \,\big|\, \dfrac{x^9 - x + 1}{B(x)}$$
$$\dfrac{-\qquad}{K(x)}$$

     $\text{der}\,[B(x)] = \text{der}\,[K(x)] - 1$

$\Rightarrow$ **max $[P(x)]$ = ?**

A) 24   B) 23   C) 17   D) 16   E) 15

5. $P(x) = 2x^2 - x + 5$

$\Rightarrow$ **$P(x^2)$ = ?**

A) $4x^4 - x^2 + 5$ B) $2x^4 + x^2 + 5$

C) $2x^4 - x^2 + 5$ D) $4x^4 + x^2 + 5$

            E) $x^4 - x^2 + 5$

6. $P(x^2 + x + 1) = 3x^2 + 3x + 5$

$\Rightarrow$ **P(20) = ?**

A) 60   B) 61   C) 62   D) 63   E) 65

7. $(x^2 - 1) \cdot Q(x + 1) = x^3 + mx + n$

$$x^2 - 1 \,\big|\, \dfrac{Q(x)}{B(x)}$$

$\Rightarrow$ **B(x) = ?**

A) x B) $x + 1$ C) $x - 1$

       D) $x + 2$ E) $x - 2$

8. $P(x) = (x + 2)^{2020} - 2(x + 2)^{2019}$

$$P(x) \,\big|\, \dfrac{x}{B(x)} \qquad B(2x + 5) \,\big|\, \dfrac{2x - 2}{\underline{}}$$
$$\qquad\qquad\qquad\qquad K$$

$\Rightarrow$ **K = ?**

A) 7^{2020} B) 7^{2019} C) 5^{2019}

       D) 9^{2019} E) 3^{2019}

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9. $x > 6$

$P(x) = (654321)_x - (1234)_x$

$\Rightarrow P(1) = ?$

A) 0   B) 2   C) 8   D) 10   E) 11

10. $\dfrac{P(x) + x}{Q(x - 1) + 2} = x^2 - 3x$

P(x) polinomunun katsayılar toplamı 13 ise Q(x) polinomunun sabit terimi kaçtır?

If the sum of the coefficients of P(x) is 13 what is the constant term of Q(x) polynomial?

A) – 9   B) – 7   C) – 4   D) – 2   E) – 1

11. $P(x) = 3x^3 + a$

$Q(x) = (b - 2)x^3 + (c + 1)x^2 - 4$

$P(x) = Q(x)$

$\Rightarrow a + b + c = ?$

A) 5   B) 4   C) 1   D) 0   E) – 1

12. $P(x) = x^2 - 2x + 1$

$Q(x) = 2x^2 - 3x - 1$

$P(x) + R(x) = 2Q(x)$

$\Rightarrow R(x) = ?$

A) $3x^2 - 4x$ B) $3x^2 - 3$ C) $3x^2 - 4x - 3$

D) $3x^2 + 4x - 3$ E) $3x^2 - 8x - 3$

13. $P(x) = 2x^2 - x$

$Q(x) = x^3 + 1$

$\Rightarrow P(1) \cdot Q(1) = ?$

A) 5   B) 4   C) 3   D) 2   E) 1

14. $P(2x - 5) - P(3x - 4) = x^2 + x + 1$

$\Rightarrow P(1) - P(5) = ?$

A) 15   B) 14   C) 13   D) 12   E) 11

15. $P(x) = (x^5 + 4x^4 - 2x^3 + 3) \cdot (- x^4 + 2x^3 - 3x^2 + 5)$

$Q(x) = a_9 \cdot x^9 + a_8 \cdot x^8 + \ldots + a_1 \cdot x + a_0$

$P(x) = Q(x)$

$\Rightarrow a_6 = ?$

A) 16   B) 14   C) – 12   D) – 14   E) – 16

16.

$$\begin{array}{r|l} 2x^4 - 3x^3 + 2x + 5 & \underline{x^2 - 1} \\ & B(x) \\ \underline{} & \\ K(x) & \end{array}$$

$\Rightarrow B(x) + K(x) = ?$

A) $2x^2 - 3x + 2$ B) $2x^2 - 4x + 9$ C) $7 - x$

D) $2x^2 - 5x + 1$ E) $2x^2 + 2x - 3$

1-B   2-B   3-A   4-D   5-C   6-C   7-B   8-D   9-E   10-A   11-D   12-C   13-D   14-C   15-E   16-B

1. $P(x) = x^{2020!} + 2x^9 - 5$

$Q(x) = x^2 - x + 1$

$$\begin{array}{c|c} P(x) & Q(x) \\ \hline - & \\ \hline K & \end{array}$$

$\Rightarrow$ **K = ?**

A) -8 B) -6 C) -2 D) -1 E) 0

2. $\dfrac{a^8 + 4a^2 - 8}{a^2 + 2} = ?$

A) $a^6 - a^5 - 4a^4 - 4$ B) $a^6 - 3a^4 - 4$

C) $a^6 - 2a^4 + 4a^2 - 4$ D) $a^6 - 2a^4 + 4a^2 - 3$

E) $a^6 - 3a^3 + 1$

3. $P(x) = 2x^2 + mx + 4$

$P(x_1) = P(x_2) = 0$

$x_1 \neq x_2 \quad x_1 + x_2 = 2 \cdot x_1 \cdot x_2$

$\Rightarrow$ **m = ?**

A) -2 B) -4 C) -6 D) -8 E) -10

4. $P(x, y) = x^5 + 2x^3y^3 + 3x^2 - 4y^4$

$\Rightarrow$ $\text{der}\left[P(x, y)\right] + P(1, 0) = ?$

A) 6   B) 7   C) 8   D) 9   E) 10

5. $P(x) = x \cdot (x + 3)^3 \cdot (x + 5)^5$

$Q(x) = x^2 \cdot (x + 3) \cdot (x + 5)^3$

$\Rightarrow \dfrac{\text{EKOK}(P(x), Q(x))}{\text{EBOB}(P(x), Q(x))} = ?$

A) $x \cdot (x + 3)^2 \cdot (x + 5)^2$ B) $x^2 \cdot (x + 3)$

C) $x^2 \cdot (x + 3) \cdot (x + 5)$ D) $x \cdot (x + 3)$

E) $x \cdot (x + 3) \cdot (x + 5)^2$

6. $P(x) = ax^2 + bx + c$

$A = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$

$a \in A \quad b \in A \quad c \in A$

$P\left(-\dfrac{2}{3}\right) = 0$

$\text{der}\left[P(x)\right] = 2$

kaç farklı P(x) polinomu yazılabilir?

How many different P(x) polynomials can be written?

A) 7   B) 6   C) 5   D) 4   E) 3

7. $P(x) = (x + 1) + (x + 2) + (x + 3) + \ldots + (x + 19)$

$Q(x) = (x + 1) + (x + 2) + \ldots + (x + 5)$

$$\begin{array}{c|c} P(x) & Q(x) \\ \hline - & \\ \hline K & \end{array}$$

$\Rightarrow$ **K = ?**

A) 19   B) 20   C) 133   D) 134   E) 190

8.
$$Q(x + 2) = ax^2 + bx + c$$
$$Q(x + 3) = x^5 + 3x^4 - 6$$

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

A) 6   B) 5   C) – 5   D) – 6   E) – 1

9.
$$P(x) = Ax^3 + Bx^2 + Cx + D$$
$$P(1) = 1 \qquad P(2) = 3$$
$$P(3) = 5 \qquad P(4) = 6$$

$$\Rightarrow P(7) = ?$$

A) 7   B) – 7   C) 3   D) – 3   E) 9

10.
$$P(x) = x^6 - 16x^5 - 18x^4 + 18x^3 - 15x^2 - 34x + 3$$

$$\begin{array}{c|c} P(x + 5) & x - 12 \\ \hline - & \\ \hline K & \end{array}$$

$$\Rightarrow K = ?$$

A) 0   B) 1   C) 2   D) 3   E) 12

11.
$$P(- x) = - P(x)$$

$$\begin{array}{c|c} P(x) & x - 2 \\ \hline - & \\ \hline 4 & \end{array} \qquad \begin{array}{c|c} P(x) & x^2 - 4 \\ \hline - & \\ \hline K(x) & \end{array}$$

$$\Rightarrow K(x) = ?$$

A) 2x – 4   B) 2x + 4   C) 2x

D) 2x – 5   E) 2x + 5

12.
$$P(x) = 1 + x + x^2 + x^3 + \ldots + x^{2019}$$

$$\begin{array}{c|c} P(x^2 - x) & x^2 - x + 1 \\ \hline - & \\ \hline K & \end{array}$$

$$\Rightarrow K = ?$$

A) – 2   B) – 1   C) 0   D) 1   E) 2

13.
$$P(x) = x^3 + ax^2 + bx + 4$$

$$\begin{array}{c|c} P(x) & (x + 1)^2 \\ \hline - & \\ \hline 3x - 1 & \end{array}$$

$$\Rightarrow a + b = ?$$

A) 1   B) 5   C) 7   D) 14   E) 21

14.
$$P(x) = (x + 1)^4 + (1 - x)^4 + x^4$$
$$i = \sqrt{-1}$$

$$\Rightarrow P(i) = ?$$

A) – 7   B) – 6   C) 1 + i   D) i   E) 4i

15.
$$P(x) = (1 + x)(1 + x^2)(1 + x^4)(1 + x^8)$$

$$\Rightarrow 6 \cdot P(7) + 1 = ?$$

A) 7^6 B) 7^{16} C) 16^8 D) 8^{16} E) 0

1.

$$P(x) \mid \underline{x + 5} \qquad P(x) \mid \underline{x + 2} \qquad P(x) \mid \underline{x^2 + 7x + 10}$$
$$\underline{-} \qquad\qquad \underline{-} \qquad\qquad \underline{-}$$
$$1 \qquad\qquad\quad 7 \qquad\qquad\qquad K(x)$$

$\Rightarrow$ **K(x) = ?**

A) $2x - 3$ B) $x + 4$ C) $x - 1$

D) $3x + 16$ E) $2x + 11$

2.

$P(x - 1) + P(x + 1) = 4x^2 - 2x + 10$

$\Rightarrow$ **P(x) = ?**

A) $2x^2 - x + 3$ B) $2x^2 + x + 3$ C) $4x^2 - 1$

D) $4x^2 + 1$ E) $5x^2 + 1$

3.

$P(ax + b) = a - bx$

$\Rightarrow$ **P(0) = ?**

A) $\dfrac{a^2 + b^2}{b}$ B) $2a + b$ C) $\dfrac{a^2 + b^2}{a}$

D) $\dfrac{a^2 - b^2}{a}$ E) $\dfrac{a^2 - b^2}{b}$

4.

$P(x) + P(2x) + P(3x) = 14x^2 + 3$

$\Rightarrow$ **P(x) = ?**

A) x^2 B) $2x^2 + 1$ C) $x^2 + 3$

D) $x^2 + 1$ E) $x^2 - 3$

5.

$\dfrac{P(2x + 1)}{Q(x - 3)} = x^2 + x + 1$

$$P(x) \mid \underline{x - 9} \qquad Q(x) \mid \underline{x - 1}$$
$$\underline{-} \qquad\qquad \underline{-}$$
$$K \qquad\qquad\quad 7$$

$\Rightarrow$ **K = ?**

A) 149 B) 147 C) 21 D) 19 E) 10

6.

$P(x) = x^3 + x^2 + 4 \Rightarrow P'(x) = 3x^2 + 2x$

$Q(x) + Q'(x) = (x + 1)^2$

$\Rightarrow$ **Q(10) = ?**

A) 11 B) 101 C) 1001 D) 25 E) 1

7.

$$P(x) \mid \underline{x - 1} \qquad Q(x) \mid \underline{x - 1} \qquad 3P(x) + t \cdot Q(x) \mid \underline{x - 1}$$
$$\underline{-} \qquad\qquad \underline{-} \qquad\qquad\qquad\qquad \underline{-}$$
$$-4 \qquad\qquad\quad 6 \qquad\qquad\qquad\qquad\quad 0$$

$\Rightarrow$ **t = ?**

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

8.

$(x^2 - 1)(px^2 + qx + r) + 3x + 5 = P(x)$

$Ax^4 + Bx^3 + Cx^2 + Dx + E = Q(x)$

$P(x) = Q(x)$

$\Rightarrow$ **A + C + E = ?**

A) 10 B) 8 C) 5 D) 4 E) 0

9. $P(x) = x^4 + ax^3 + bx^2 + cx + d$

$P(-i) = P(2i) = 0$

$\Rightarrow$ **P(0) = ?**

A) 2   B) 4   C) 5   D) 6   E) 7

10. $P(x) = x^2 - 47x + 53$

$$\begin{array}{r|l} P(x) & x - m \\ \underline{} & \\ 0 & \end{array} \qquad \begin{array}{r|l} P(x) & x - n \\ \underline{} & \\ 0 & \end{array}$$

$\sqrt{a + \sqrt{4b}} = \sqrt{m} + \sqrt{n}$

$\Rightarrow$ **$b^2 - a^2$ = ?**

A) 6   B) 47   C) 80   D) 530   E) 600

11. $P(x)$ bir polinom,

$P(P(x)) = 9x + 28$

P(x) aşağıdakilerden hangisi olabilir?

If $P(x)$ is a polynomial, which of the following can be the value of $P(x)$?

A) $2x + 7$ B) $x + 7$ C) $3x + 1$

    D) $3x + 7$ E) $2x + 15$

12. $P(x) = x^3 + ax^2 + 5x + b$

$Q(x) = x^2 + x$

$$\begin{array}{r|l} P(x) & Q(x) \\ \underline{-} & \\ 12x - 3 & \end{array}$$

$\Rightarrow$ **a – b = ?**

A) – 4   B) – 3   C) – 2   D) – 1   E) 0

13. $P(x) = 2x^3 - x + 8$

$P(x - 2) = x \cdot Q(x + 1)$

$\Rightarrow$ **Q(3) = ?**

A) 8   B) 7   C) 6   D) 5   E) 4

14. $P(x - 1) + P(x) = 6x - 5$

$\Rightarrow$ **P(5) = ?**

A) 11   B) 12   C) 13   D) 14   E) 15

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15. $(x - 2) \cdot P(x) = x^3 + mx^2 + x + 2$

$\Rightarrow$ **P(2) = ?**

A) – 1   B) 0   C) 1   D) 2   E) 3

1. $P(2x + 1) - P(x + 2) = ax^2 - x - 3$

$\Rightarrow$ **P(11) − P(7) = ?**

A) 92   B) 93   C) 94   D) 95   E) 96

4. $P(x) = x^3 + x + 2P(1)$

$\Rightarrow$ **P(3) = ?**

A) 8   B) 16   C) 20   D) 26   E) 32
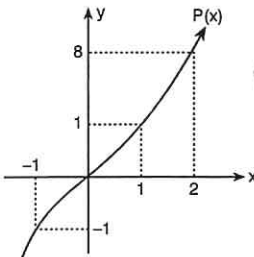
2. $P(x) = (a - 2)x^3 + 5x^2 + bx + a + 1$

$der\left[P(x)\right] = 2$

ise P(x) polinomunun sabit terimi kaçtır?

If P(x) is a polynomial, what is the constants term of P(x) polynomial?

A) 1   B) 2   C) 3   D) 4   E) 5

5. $P(x) = x^{2020} - x^{2019}$

$P(2) \equiv m \pmod 5$

$\Rightarrow$ **m = ?**

A) 0   B) 4   C) 3   D) 2   E) 1

6. $P(x) = x^2 - 4x + m + 2$

$P(x_1) = P(x_2) = 0$

$x_1 = x_2$

$\Rightarrow$ **P(m) = ?**

A) 0   B) 1   C) 2   D) 3   E) 4

3.

$\dfrac{P(x)}{}\,\Big|\,\dfrac{Q(x)}{K}$

$\Rightarrow$ **K = ?**

A) 125   B) 25   C) 5   D) 1   E) 0

7. $(3x - 2)^3 = ax^3 + bx^2 + cx + d$

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

A) 8   B) 9   C) 10   D) 11   E) 12

8. $P(x) = x + 1$

$Q(x) = x^2$

$\Rightarrow P^2(Q(1)) + Q^2(P(2)) = ?$

A) 11 B) 12 C) 13 D) 85 E) 86

9.

$$\begin{array}{r|l} P(x) & x^2 - 2x \\ \hline & Q(x) \end{array} \qquad \begin{array}{r|l} P(x) & x - 2 \\ \hline & B(x) \end{array}$$

$$\underline{-}$$

$$4x + 1$$

$\Rightarrow B(x) = ?$

A) $x \cdot Q(x) - 4$ B) $x \cdot Q(x)$

C) $x \cdot Q(x) + 4$ D) $x \cdot Q(x) - 2$

E) $x \cdot Q(x) + 2$

10. $P\left(x + \dfrac{1}{x}\right) = \dfrac{x}{x^2 + 1}$

$\Rightarrow P\left(\dfrac{1}{5}\right) + P(3^{-2}) = ?$

A) 12 B) 13 C) 14 D) 15 E) 16

11. $P(x) = ax^2 + bx + c$

$P(1) = P(2) = 0$

$\Rightarrow \dfrac{c}{b} = ?$

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

12. $(x^2 + 1) \cdot P(x) = ax^3 + (b - 2)x + a - 1$

$\Rightarrow a + b = ?$

A) 3 B) 4 C) 5 D) 6 E) 7

13. $P(x) + P(x^2) + P(x^3) + \ldots + P(x^{17}) = x^{17} - 4x + 54$

$\Rightarrow P(-1) = ?$

A) 17 B) 15 C) 11 D) $\dfrac{11}{3}$ E) $\dfrac{17}{3}$

14. $2x^3 + 4x^2 + 3x + 3 = (x + 3) \cdot (ax^2 + bx + c)$

$\Rightarrow a - b + c = ?$

A) 0 B) 1 C) 2 D) 3 E) 4

15. $P(x)$ polinomunun $x^2 + 2$ ile bölümünden kalan $x - 1$ ve $Q(x)$ polinomunun $x^2 + 2$ ile bölümünden kalan $x - 3$ olduğuna göre,

$$x^2 \cdot P(x) - x \cdot Q^2(x)$$

polinomunun $x^2 + 2$ ile bölümünden kalan kaçtır?

If the remainder of the polynomial P(x) dividing by $x^2 + 2$ is x – 1 and remainder of the polynomial Q(x) dividing by $x^2 + 2$ is x – 3, then what is the remainder of the polynomial $x^2 \cdot P(x) - x \cdot Q^2(x)$ dividing by $x^2 + 2$?

A) $-9x - 10$ B) $-9x + 10$ C) $-9x + 7$

D) $2x + 10$ E) 0

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1. P(2x – 1) polinomunun katsayılar toplamı 3a – 7, P(x + 1) polinomunun sabit terimi a + 1 ise a = ?

The sum of coefficients of P(2x – 1) polynomial is 3a – 7, the constant term of P(x + 1) polynomial is a + 1

$\Rightarrow$ **a = ?**

A) 3   B) 4   C) 5   D) 6   E) 7

2. $(x^2 – x + 2)^4 = a_8 \cdot x^8 + a_7 \cdot x^7 + \ldots + a_2 \cdot x^2 + a_1 \cdot x + a_0$

$\Rightarrow$ $a_8 + a_6 + a_4 + a_2 = ?$

A) 100   B) 108   C) 110

D) 120   E) 136

3. $(x^2 – 2x) \cdot (x + 1)^3 = a_5 \cdot x^5 + a_4 \cdot x^4 + a_3 \cdot x^3 + a_2 \cdot x^2 + a_1 \cdot x + a_0$

$\Rightarrow$ $a_1 + a_3 + a_5 = ?$

A) – 8   B) – 6   C) – 4   D) – 2   E) – 1

4. $P(x) = x^4 + 2x^3 – x^2 + 3x – 1$

$Q(x) = x^2 + 1$

$$\begin{array}{c|c} P(x) & Q(x) \\ \hline & B(x) \end{array} \qquad \begin{array}{c|c} B(x) & x - 2 \\ \hline & \\ \hline K \end{array}$$

$\Rightarrow$ **K = ?**

A) 6   B) 7   C) 8   D) 9   E) 10

5. $P(x, y) = 2x^2 + 2y^2 – 4xy – 3x + 3y – 3$

P(x, y) polinomunun (x – y + 4) ile bölümünden kalan kaçtır?

What is the remainder of the polynomial P(x, y) dividing by (x – y + 4)?

A) 37   B) 38   C) 39   D) 40   E) 41

6. $P(x) = 3x^{36} – 5x^{18} – 2$

P(x) polinomunun $(x^9 + \sqrt{3})$ ile bölümünden kalan kaçtır?

What is the remainder of the polynomial P(x) dividing by $(x^9 + \sqrt{3})$?

A) 8   B) 9   C) 10   D) 11   E) 12

7. $P(x) = x^3 + ax^2 + bx + c$

$P(1) = P(3) = P(5) = 7$

$\Rightarrow$ **P(0) = ?**

A) – 8   B) 8   C) – 4   D) 4   E) 1

8. $P(x) = 3x^2 + mx + n$

$P(1) – P(0) = 2$

$\Rightarrow$ $P(2) – P(1) = ?$

A) 7   B) 8   C) 9   D) 10   E) 11

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9. a ve b tam sayı,

$$P(x) = x^2 - 2x + a$$

$$Q(x) = x^2 + 3x + b$$

$$P(x_1) = P(x_2) = Q(x_1) = 0$$

$$\Rightarrow a + b = ?$$

A) -6 B) -5 C) -4 D) -3 E) -2

10. $P(x) = 1 + x + x^2 + x^3 + \ldots + x^{50}$

$$\begin{array}{c|c} P(x) & x - 1 \\ \hline & B(x) \end{array}$$

$$\Rightarrow B(1) = ?$$

A) 1326   B) 1275   C) 1150

D) 50   E) 0

11. $P(x) = 2x^3 + ax^2 + bx + c + 1$

$$\begin{array}{c|c} P(x) & x^2 - 1 \\ \hline & B(x) \\ \hline & B(x) \end{array}$$

$$\Rightarrow b + c = ?$$

A) -2 B) -1 C) 0   D) 1   E) 2

12.

$$\begin{array}{c|c} P(x) & x + 1 \\ \hline & \\ \hline 0 & \end{array} \qquad \begin{array}{c|c} P(3x + 8) & Q(x) \\ \hline & \\ \hline 0 & \end{array}$$

$$\Rightarrow Q(x) = ?$$

A) x + 1   B) x + 2   C) x + 3

D) x − 2   E) x − 3

13. $P(x) = (x + 7)^{-n} + (x + 8)^{-n} - 1$

P(x) polinomunun (x + 7) . (x + 8) ile tam bölünmesi için n için aşağıdakilerden hangisi doğrudur?

The polynomial of P(x) to be completely divided with (x + 7) . (x + 8) which on of the following is true for "n"?

A) $n = 2k,\ k \in Z$ B) $n = 2k + 1,\ k \in Z$

C) $n = 2k,\ k \in Z^+$ D) $n = 2k,\ k \in Z^-$

E) $n = 2k - 1,\ k \in Z^-$

14.

$$\begin{array}{c|c} A(x) & B(x) \\ \vdots & \overline{x + 1} \\ \hline 3 & \end{array} \qquad \begin{array}{c|c} B(x) & C(x) \\ \vdots & \overline{x - 2} \\ \hline 2 & \end{array}$$

$$\begin{array}{c|c} A(x) & (x + 1) \cdot (x - 2) \\ \vdots & \\ \hline & D(x) \end{array}$$

$$\Rightarrow D(x) = ?$$

A) 2x + 7   B) 2x + 5   C) 2x + 3

D) 2x − 1   E) 2x − 3

15.

$$\begin{array}{c|c} P(x) & x^2 - x - 2 \\ \hline & \\ \hline 2x + 3 & \end{array} \qquad \begin{array}{c|c} P^2(x) & x^2 - x - 2 \\ \hline & \\ \hline & K(x) \end{array}$$

$$\Rightarrow K(x) = ?$$

A) 16x + 17   B) 15x + 10   C) 3

D) x + 1   E) x − 1

16. $n > 1,\ n \in N$

$$P(x) = x^{n+1} + x^{n-1} - 10x^5$$

$$P(x) = (x - 3) \cdot Q(x)$$

$$\Rightarrow n = ?$$

A) 5   B) 6   C) 7   D) 10   E) 12

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