

Ассигн

$$1. \quad \textcircled{7} \quad (2-x)^3 - (1+x)^2 - (-x-1)(1+x)$$

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

$$= 8 - 12x + 6x^2 - x^3 - 1 - 2x - \cancel{x^2} + \cancel{x} + \cancel{x^2} + 1 + \cancel{x}$$

$$= -x^3 + 6x^2 - 12x + 8.$$

$$\textcircled{8} \quad (2x-1)^2 - (-x-2)^2$$

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

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

$$4x^2 - 4x + 1 = x^2 + 4x + 4$$

$$3x^2 - 8x - 3.$$

$$2. \textcircled{B} \frac{(x^2)^3 x^{-2}}{(x^{-4})^2 \cdot x} = \frac{x^6 \cdot x^{-2}}{x^{-8} \cdot x}$$

$$= \frac{x^4}{x^{-7}} = x^{11}$$

$$\textcircled{Y} \frac{(x^2 y^3)^2 : x^{-2}}{(x y^{-4})(x^2 y^2)} =$$

$$= \frac{(x^4 y^6) : x^{-2}}{x^3 y^{-2}} =$$

$$= \frac{\frac{x^4 y^6}{x^{-2}}}{\frac{x^3 y^{-2}}{1}} = \frac{x^4 y^6}{x^3 y^{-2} x^{-2}}$$

$$= \frac{x^4 y^6}{x^1 y^{-2}} = x^3 y^8$$

13.

Evaluata
4

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

$$\text{For } x = \left(-\frac{1}{2}\right)^{-1} = -\left(\frac{2}{1}\right)^1 = -2$$

$$x = -2$$

$$A = 1 - 6x^2 + 3x - (2x^3 - 3x - 2x^2 + 3)$$

$$A = 1 - 6x^2 + 3x - 2x^3 + 3x + 2x^2 - 3$$

$$A = -2x^3 - 4x^2 + 6x - 2$$

$$A = -2(-2)^3 - 4(-2)^2 + 6(-2) - 2$$

$$A = +2 \cdot 8 - 4 \cdot 4 - 12 - 2$$

$$A = 16 - 16 - 14 \quad \underline{A = -14}$$

$$16. \textcircled{B} 1 - 2x(-x+1) - (3x-1)^2 =$$

$$1 + 2x^2 - 2x - (9x^2 - 6x + 1) = 1 + 2x^2 - 2x - 9x^2 + 6x - 1 = \underline{\underline{-7x^2 + 4x}}$$

$$12. \textcircled{B} (a-b)^2 + 4ab = (a+b)^2$$

$$(a-b)^2 + 4ab = a^2 - 2ab + b^2 + 4ab = a^2 + 2ab + b^2 = \underline{\underline{(a+b)^2}}$$

$$\textcircled{8} (a+b)^3 - (a-b)^3 - 6a^2b = 2b^3$$

$$\begin{aligned} (a+b)^3 - (a-b)^3 - 6a^2b &= a^3 + 3a^2b + 3ab^2 + b^3 - (a^3 - 3a^2b + 3ab^2 + b^3) - 6a^2b = \\ &= \cancel{a^3} + 3\cancel{a^2b} + 3\cancel{ab^2} + b^3 - \cancel{a^3} + 3\cancel{a^2b} - 3\cancel{ab^2} + b^3 - 6a^2b = \cancel{2a^3} + \cancel{6a^2b} + \cancel{6ab^2} + 2b^3 - 6a^2b = \underline{\underline{2b^3}} \end{aligned}$$

10.

(52)

$$x^5 - (-x-2)(x-2) - x(-x^2+1)^2$$

$$x^5 - (-x^2 + 2x - 2x + 4) - x(1 - x^2)^2$$

$$\begin{array}{r} x^5 + x^2 - 2x + 2x - 4 + x^5 - x^3 \\ \hline x^5 + x^2 - 4 + x^5 - x^3 \\ \hline x^5 - 4 \end{array}$$

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

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

$$\cancel{x^5 + x^2 - 2x + 2x - 4}$$

$$\cancel{x^5 + x^2 - 2x + 2x^3 - x^5}$$

$$2x^3$$

10. (5) $1 - 8x^2(x-2) - (2x-1)^3$

~~1 - 8x^3 + 16x^2 - (2x-1)^3~~

$1 - 8x^3 + 16x^2 - (8x^3 - 3 \cdot 2x^2 \cdot (-1) + 3 \cdot 2x \cdot (-1)^2 - 1^3)$

$1 - 8x^3 + 16x^2 - (8x^3 - 3 \cdot 4x^2 \cdot (-1) + 6x \cdot (-1)^2 - 1^3)$

$1 - 8x^3 + 16x^2 - (8x^3 + 12x^2 + 6x - 1^3)$

$1 - 8x^3 + 16x^2 - (8x^3 + 12x^2 + 6x - 1)$

~~$1 - 8x^3 + 16x^2 - 8x^3 - 12x^2 - 6x + 1$~~

$2 - 16x^3 - 4x^2 - 6x$

9. (6) $x^2 - 2x(1-x) - (2x-1)^2$

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

~~$3x^2 - 2x - 4x^2 + 4x - 1$~~

$x^2 + 2x - 1$

$$(a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$$

9. (52) $8x(x-1)(x+1) - (2x-1)^3$

$$8x \cdot (x^2 + x - x - 1) - (\cancel{8x^3} - 3 \cdot (2x)^2 \cdot 1 + 3 \cdot 2x \cdot 1^2 - 1^3)$$

$$8x \cdot (x^2 - 1) - (8x^3 - 3 \cdot 4x^2 \cdot 1 + 6x \cdot 1 - 1)$$

$$8x^3 - 8x - (8x^3 - 12x^2 + 6x - 1)$$

$$\cancel{8x^3} - 8x - \cancel{8x^3} + 12x^2 - 6x + 1$$

$$-14x + 12x^2 + 1$$

$$(1-x^2) - (x-1)x^2 - 1 \cdot 1 = 0$$

$$(x^2 - 1) - (x-1)x^2 - 1 \cdot 1 = 0$$

extra

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

~~$$2^2 - 2 \cdot 2(-1) - 2x+1+x-1$$~~

~~$$4 - 12x - 2x + 1 + x - 1$$~~

~~$$-13x + 4$$~~

$$2^2 - 6x + 3x^2 - (-2x^2 + 3x + x - 1)$$

$$2^2 - 2 \cdot 2 \cdot 3x + (3x)^2 - (-2x^2 + 2x + x - 1)$$

$$4 - 12x + 9x^2 - (-2x^2 + 3x - 1)$$

$$9x^2 - 12x + 4 + 2x^2 - 3x + 1$$

$$\underline{\underline{11x^2 - 15x + 5}}$$

$$11 \textcircled{1} (x+5)^2 - (3x-1)^2 + 8x^2 =$$

$$(x^2 + 2 \cdot x \cdot 5 + 5^2) - (3x^2 - 2 \cdot 3x \cdot (-1) + 1) + 8x^2 =$$

$$\cancel{x^2 + 10x + 25} - \cancel{3x^2 + 6x + 1} + 8x^2$$

$$\cancel{6x^2 + 11x + 26}$$

$$x^2 + 10x + 25 - ((3x)^2 - 2 \cdot 3x \cdot 1 + 1^2) + 8x^2$$

$$= x^2 + 10x + 25 - (9x^2 - 6x + 1) + 8x^2$$

11. (d) $(3x+2)^2 - 3x(x-2)/(x+2) - x/(2x-1)^2$

$$(9x^2 + 2 \cdot 3x \cdot 2 + 4) - 3x(x^2 - 4) - x(4x^2 - 4x + 1)$$

$$9x^2 + 12x + 4 - 3x^3 + 4 - 4x^3 + 4x^2 - x$$

$$-7x^3 + 13x^2 - 11x + 8$$

9. (B) $x^3 - 3x(2x-1) - (x-1)^3$

$$x^3 - 6x^2 + 3x - (x^3 - 2x^2 + 2x - 1)$$

$$x^3 - 6x^2 + 3x - x^3 + 2x^2 - 2x + 1$$

$$-4x^2 + x + 1$$

$$\begin{aligned}
 (52) \quad & -10x^2 + 2(x+3)^3 - (2x-1)^2 \\
 & -10x^2 + 2(x^3 + 3 \cdot x^2 \cdot 3 + 3 \cdot x \cdot 9 + 27) - (4x^2 - 2 \cdot 2x + 1) \\
 & -10x^2 + 2(x^3 + 9x^2 + 27x + 27) - (4x^2 - 4x + 1) \\
 & -10x^2 + 2x^3 + 18x^2 + 54x + 54 - 4x^2 + 4x - 1 \\
 & 2x^3 + 4x^2 + 58x + 53
 \end{aligned}$$

$$\begin{aligned}
 13. \quad (8) \quad & (x^2-1)(a^2-9) + (3x-a)^2 = (ax-3)^2 \\
 & (x^2 - \cancel{a} + 9) + (9x^2 - 2(3x)(-a) - a^2) = (ax-3)^2 \\
 & x^2 + 9 + (9x + 6xa - a^2) = (ax)^2 - 2ax(-3) + 9 \\
 & \underline{x^2} + \underline{9} + \underline{9x} + \underline{6xa} - \cancel{a^2} = \cancel{a^2} \cdot \underline{x^2} + \underline{6ax} + \underline{9}
 \end{aligned}$$

$$13. \textcircled{B} (a^2 - 3)^2 - a(a-1)(a-5) = (a-1)(a^3-5) + 4$$

~~$$(a^2-3)^2 - a(a-1)(a-5) = a^4 - 6a^2 + 9 - a^3 + a - a^2 + 5a = -6a^2 + 6a + 9 + 4$$~~

~~$$(a-1)(a^3-5) + 4 = a^4 - 5a - a^3 + 5 + 4 = a^4 - a^3 - 5a + 9$$~~

~~$$(a^2-3)^2 - a(a-1)(a-5) = a^4 - 6a^2 + 9 - a^3 + a - a^2 + 5a = -6a^2 + 6a + 9$$~~

~~$$a^4 - a^3 - 5a + 9 + 6a^2 - 6a - 9 = 0 \Leftrightarrow a^4 - a^3 + 6a^2 - 11a = 0$$~~

$$(a^2)^2 - 2 \cdot a^2 \cdot 3 + 3^2 - a(a^2 - 5a - a + 5) = a^4 - 5a - a^3 + 5 + 4$$

~~$$a^4 - 6a^2 + 9 - a(a^2 - 6a + 5) = a^4 - 5a - a^3 + 9$$~~

~~$$-6a^2 - a^3 + 6a^2 - 5a = -5a - a^3$$~~

$$0 = 0,$$

Επόμενο μάθημα

Ημερομηνία μαθήματος: 15/9/25.

Ώρα μαθήματος: 20:00.

Ασκήσεις

Ενότητα 4

(10) ολν

(11) ολν

(12) ολν

(15)

(16) -

Ενότητα 5

(9) αδε

(10) αδε

(11) αδε

(12) αδε.

(13) αγ.

παρατηρήσεις