6.5 (41)

$x^6 - (3y)^6$

$x(3y)^2 \quad (3y)^2$

$9y^2$

$(x^2)^3 - ((3y)^2)^3$

$[x^2 - (3y)^2][x^4 + 9x^2y^2 - (3y)^4]$

$(x^2 - 9y^2)(x^4 + 9x^2y^2 - 81y^4)$

$(x - 3y)(x + 3y)(x^4 + 9x^2y^2 - 81y^4)$

5.8 (11) $\dfrac{x^2+5x+8}{x+3}$

$$x+3 \;\overline{)\; x^2+5x+8}$$

$$x+2+\frac{2}{x+3}$$

x^2+3x

$2x+8$

$2x+6$

2

$x+3$

$x+2$

x^2+3x

$+2x+6$

x^2+5x+6

$+2$

x^2+5x+8 ☺

$(-8)^2 = 64$

$-8^2 = -64$

④ $y^3 \cdot y^9$

y^{12}

⑥ $(x^7)^5$

x^{35}

16 $\dfrac{x^{-7}}{x^{-2}} \rightarrow \dfrac{1}{x^7 x^{-2}}$

x^{-7+2}

$\dfrac{1}{x^5}$

x^{-5}

$\dfrac{1}{x^5}$

⑱ $3^0 - 5^1 + 5^0$

$1 - 5 + 1$

-3

(24) $\dfrac{(2x^{-4})(15x^{9})}{6x^{6}}$

$\dfrac{2(15)}{6} \cdot \dfrac{x^{-4}x^{9}}{x^{6}}$

$\dfrac{5x^{5}}{x^{6}}$

$\dfrac{5}{x}$

(30) $\dfrac{(4\times10^{6})(6\times10^{6})}{3\times10^{8}}$

$\dfrac{4(2)}{3} \cdot \dfrac{10^{6}\cdot10^{6}}{10^{8}}$

8×10^{4}

scientific notation

(38) $(x+5)(x^2-5x+25)$

$$x^2-5x+25$$
$$x+5$$
$$x^3-5x^2+25x$$
$$5x^2-25x+125$$
$$x^3+125$$

x^3+125

$(x)^3+(5)^3$

$(x+5)(x^2-5x+25)$

	x	x^2
x	x	
5	$5x$	
5	5	25

$(y^2+3)^2 = y^4 + 6y^2 + 9$

$(y^2+3)(y^2+3)$

---

46 $\dfrac{10ab + 20a^2}{-5a}$

$\dfrac{10ab}{-5a} + \dfrac{20a^2}{-5a}$

$-2b - 4a$

(ex) $x^2 - 3x - 10$

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

prod -10 $(-5)(2)$

sum -3

(ex) $6x^2 + 11x - 10$

prod -60 $2(30)$ $3(20)$

sum 11 $-4(15)$

$6x^2 - 4x + 15x - 10$

$2x(3x-2) + 5(3x-2)$

$(3x-2)(2x+5)$

ex $64x^2 - 25y^2$

$(8x - 5y)(8x + 5y)$

conjugates

ex $m^3n^3 + 1$

$(mn)^3 + 1^3$

$(mn + 1)(m^2n^2 - mn + 1)$

$(mn)^2$

mn	$(mn)^2$
mn	
mn	mn
1	
1	1
1	

opp

ex $x^2 - 1$

$(x + 1)(x - 1)$

(1) $13a^2 - 26a^3$

$13a^2(1 - 2a)$

$13a(a - 2a^2)$

$13a^2(1 - 2a)$

(3) $x^3 - 5x^2 - 4x + 20$

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

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

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

(6) $15t^2 - 67t + \cancel{36}$ $+38$

prod $5\overset{48}{40}$

sum -67

$5(108)$

$10(54)$

$6(90)$

$8(67.5)$

$9(60)$

-57

-10

-67

(10) $50a^2b - 72b$

$2b(25a^2 - 36)$

$2b(5a - 6)(5a + 6)$