

L

MADS, 27.10.2017

$$\begin{aligned} \textcircled{1} \text{ a) } & -3 + [2 - \{-7 - \{-2 + 5\}\}] = \\ & -3 + [2 - \{-7 + 2 - 5\}] = \\ & -3 + [2 - \{-10\}] = -3 + 2 + 10 = \underline{\underline{9}} \end{aligned}$$

$$\begin{aligned} \text{b) } & a - (2b - (a+b) - (a-c)) = \\ & a - (2b - a - b - a + c) = a - (b - 2a + c) \\ & = a - \cancel{b} + 2a - c = \underline{\underline{3a - b - c}} \end{aligned}$$

$$\begin{aligned} \text{c) } & x - (2x - (y - z)) - (y - x - z) = \\ & x - (2x - y + z) - y + x + z \\ & = \underline{x} - \underline{2x} + \underline{y} - \underline{z} - \underline{y} + \underline{x} + \underline{z} = \underline{\underline{0}} \end{aligned}$$

$$\begin{aligned} \text{d) } & a - (-a - (-a)) = \\ & a - (-a + a) = a - 0 = \underline{\underline{a}} \end{aligned}$$

$$\begin{aligned} \text{a) } & -3 + (2 - (-7 - (-2 + 5))) \\ & = -3 + (2 - (-7 + 2 - 5)) \\ & = -3 + (2 + 7 - 2 + 5) \\ & = -3 + 2 + 7 - 2 + 5 \end{aligned}$$

L

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$$a) -x^3 \cdot (-x)^3 = -x^3 \cdot (-x)(-x)(-x) = \underline{\underline{x^6}}$$

$$b) -(-1)^6 = \underline{\underline{-1}}$$

$$c) -2x \cdot (-2x)^2 = -2x \cdot (-2x)(-2x) \cancel{(-2x)} \\ = \cancel{16x^4} = \underline{\underline{-8x^3}}$$

$$d) -(-(-1)) = -(+1) = \underline{\underline{-1}}$$

$$e) (-5) \cdot (-5)^2 \cdot (-5)^3 = (-5)^6 = \underline{\underline{5^6}}$$

$$f) -\left((-x)^3\right)^2 = -(-x)^3(-x)^3 \\ = \underline{\underline{-x^6}}$$

2

③

$$a) 2a^2 + 8a + 8 = 2(a^2 + 4a + 4) = \underline{\underline{2(a+2)^2}}$$

$$b) 3a^5b - 6a^3b^2 + 3ab^3 = 3ab(a^4 - 2a^2b + b^2) \\ = \underline{\underline{3ab(a^2 - b)^2}}$$

$$c) 8x^3 - 18xy^2 = 2x(4x^2 - 9y^2) \\ = \underline{\underline{2x(2x+3y)(2x-3y)}}$$

$$d) 3s^3 - 75st^2 = 3s(s^2 - 25t^2) \\ = \underline{\underline{3s(s+5t)(s-5t)}}$$

$$e) 3x^2y - 12xy + 12y = 3y(x^2 - 4x + 4) \\ = \underline{\underline{3y(x-2)^2}}$$

$$f) a^2 + 3a - 10 = \underline{\underline{(a+5)(a-2)}}$$

③

$$\begin{aligned} g) \quad 5x^3y - 10x^2y^2 + 5xy^3 &= 5xy(x^2 - 2xy + y^2) \\ &= 5xy(x^2 - 2xy + y^2) = \underline{\underline{5xy(x-y)^2}} \end{aligned}$$

$$\begin{aligned} h) \quad 2x^2 - 18x + 28 &= 2(x^2 - 9x + 14) \\ &= \underline{\underline{2(x-2)(x-7)}} \end{aligned}$$

$$\begin{aligned} i) \quad 6xy - 10x + 9y - 15 \\ &= 2x(3y-5) + 3(3y-5) \\ &= \underline{\underline{(2x+3)(3y-5)}} \end{aligned}$$

$$j) \quad x^2 - 6xy^2 + 9y^4 = \underline{\underline{(x-3y^2)^2}}$$

$$\textcircled{4} \quad (x+4)(x-2) = 27$$

$$x^2 + 2x - 8 = 27 \quad | -27$$

$$x^2 + 2x - 35 = 0$$

$$(x-5)(x+7) = 0$$

$$\swarrow$$
$$x - 5 = 0$$

$$\underline{\underline{x_1 = 5}}$$

$$\searrow$$
$$x + 7 = 0$$

$$\underline{\underline{x = -7}}$$

$$\underline{\underline{\mathbb{L} = \{-7; 5\}}}$$

$\textcircled{5}$

$$\frac{\frac{x^2 - 1}{x^2 - x - 6}}{\frac{x^2 + 2x + 1}{x^2 - 6x + 9}} = \frac{\frac{(x+1)(x-1)}{(x-3)(x+2)}}{\frac{(x+1)^2}{(x-3)^2}}$$

$$= \frac{\cancel{(x+1)} \cancel{(x+1)}}{\cancel{(x-3)}(x+2)} \cdot \frac{(x-3)^{\cancel{2}}}{(x+1)^{\cancel{2}}} = \underline{\underline{\frac{(x-1)(x-3)}{(x+1)(x+2)}}}$$