

1) a) $\frac{4x^2y^2 \cdot 24xy^8}{4x^2 \cdot 8x^3y^6} = \frac{96x^3y^{10}}{32x^5y^6} = 3x^{-2}y^4 = \boxed{\frac{3y^4}{x^2}}$ |

b) $-xy - 3xy - x - 2xy + 3y = \boxed{-6xy - x + 3y}$ |

2) a) $(2x^4 - 10x^2 + 12x) \cdot (-6x^2 + 12x - 9) + (2x^3 + x^2 - 4x) = \boxed{2x^4 + 2x^3 - 15x^2 + 20x - 9}$ |

b) $(x^3 - 5x + 6) \cdot (2x^2 - 4x + 3 - 2x^3 - x^2 + 4x) = (x^3 - 5x + 6) \cdot (-2x^3 + x^2 + 3) = \boxed{-2x^6 + x^5 + 10x^4 - 14x^3 + 6x^2 - 15x + 18}$ |

$$\begin{array}{r} -2x^3 + x^2 + 3 \\ x^3 - 5x + 6 \\ \hline \end{array}$$

$$-12x^3 + 6x^2 + 18$$

$$10x^4 - 5x^2 - 15x$$

$$+ 3x^2$$

$$x^6 + x^5$$

c) $x^3 - 5x + 6$

$x^3 - 5x + 6$

$6x^3 - 30x + 36$

$-5x^4 + 25x^2 - 30x$

$-5x^4 + 6x^3$

$x^6 - 10x^4 + 12x^3 + 25x^2 - 60x + 36$ |

d) $P(-1/2) = 2(-1/2)^3 + (-1/2)^2 - 4(-1/2) = -\frac{2}{8} + \frac{1}{4} + \frac{4}{2} = \boxed{2}$ |

3) $10x^5 + 11x^4 - 9x^3 + 5x^2 - x$ | $5x^3 - 2x^2 + x$

$-10x^5 + 4x^4 - 2x^3$

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

$15x^4 - 11x^3 + 5x^2 - x$

$-15x^4 + 6x^3 - 3x^2$

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

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

0

4) $25x^2 + 30x + 9 - 9x^2 + 4 + 16x^2 - 16x + 4 = \boxed{32x^2 + 14x + 17}$ |

5)
$$\begin{array}{r|rrrrrr} -2 & 0 & 1 & -5 & 0 & 3 \\ -2 & & 4 & -8 & 14 & -18 & 36 \\ \hline & -2 & 4 & -4 & 9 & -18 & 39 \end{array}$$

$CC(x) = -2x^4 + 4x^3 - 7x^2 + 9x - 18$
R = 39 |