

5B. $(8y^5 - 2y^4 - 16y^2 + 4) \div (4y - 1)$

$$\begin{array}{r}
 \text{Handwritten: } 2y^4 - 4y - 1 + \frac{3}{4y-1} \\
 4y-1 \overline{) 8y^5 - 2y^4 + 0y^3 - 16y^2 + 0y + 4} \\
 \underline{(-) 8y^5 - 2y^4} \\
 0y^4 + 0y^3 - 16y^2 + 0y \\
 \underline{(-) -16y^2 + 4y} \\
 -4y + 4 \\
 \underline{(-) -4y + 1} \\
 3
 \end{array}$$

$\frac{8y^5}{4y} = 2y^4$
 $\frac{0y^4}{4y} = 0y^3$
 $\frac{-16y^2}{4y} = -4y$
 $\frac{-4y}{4y} = -1$

30. $\frac{x^3 - 3x^2 + x - 3}{x^2 + 1}$

$$\begin{array}{r}
 \text{Handwritten: } x - 3 \\
 x^2 + 0x + 1 \overline{) x^3 - 3x^2 + x - 3} \\
 \underline{(-) x^3 + 0x^2 + x} \\
 -3x^2 + 0x - 3 \\
 \underline{(-) -3x^2 + 0x - 3} \\
 0
 \end{array}$$

$\frac{x^3}{x^2} = x$
 $\frac{-3x^2}{x^2} = -3$

$$(5x^3 - 13x^2 + 10x - 8) \div (x - 2)^{x-r}$$

$$\begin{array}{r} 2 \overline{) \quad 5 \quad -13 \quad 10 \quad -8} \\ \quad \downarrow \quad 10 \quad -6 \quad 8 \\ \hline 5 \quad -3 \quad 4 \quad | \quad 0 \end{array}$$

$5 \times 2 = 10$
 $-3 \times 2 = -6$
 $4 \times 2 = 8$

$5x^2 - 3x + 4$

$$4A. (2x^3 + 3x^2 - 4x + 15) \div (x + 3)^{x-r}$$

$$\begin{array}{r} -3 \overline{) \quad 2 \quad 3 \quad -4 \quad 15} \\ \quad \downarrow \quad -6 \quad 9 \quad -15 \\ \hline 2 \quad -3 \quad 5 \quad | \quad 0 \end{array}$$

$2x^2 - 3x + 5$

$$8. \frac{x^3 + 13x^2 - 12x - 8}{x + 2}$$

$$\begin{array}{r|rrrr} -2 & 1 & 13 & -12 & -8 \\ & \downarrow & -2 & -22 & 68 \\ \hline & 1 & 11 & -34 & 60 \end{array}$$

$$\boxed{x^2 + 11x - 34 + \frac{60}{x+2}}$$

ex.5 $(8x^4 - 4x^2 + x + 4) \div (2x + 1).$

$$(4x^4 - 2x^2 + \frac{1}{2}x + 2) \div (x + \frac{1}{2})$$

$$\begin{array}{r|rrrrr} -\frac{1}{2} & 4 & 0 & -2 & \frac{1}{2} & 2 \\ & \downarrow & -2 & 1 & \frac{1}{2} & -\frac{1}{2} \\ \hline & 4 & -2 & -1 & 1 & \frac{3}{2} \end{array}$$

$$4x^3 - 2x^2 - x + 1 + \frac{\frac{3}{2}}{x + \frac{1}{2}}$$

$$\boxed{4x^3 - 2x^2 - x + 1 + \frac{3}{2x+1}}$$

5B. $(8y^5 - 2y^4 - 16y^2 + 4) \div (4y - 1)$

$\underbrace{\hspace{10em}}_4 \quad \underbrace{\hspace{2em}}_4$

$$(2y^5 - \frac{1}{2}y^4 + 0y^3 - 4y^2 + 0y + 1) \div (y - \frac{1}{4})$$

$$\begin{array}{r} \frac{1}{4} \overline{) 2 \quad -\frac{1}{2} \quad 0 \quad -4 \quad 0 \quad 1} \\ \underline{\downarrow \quad \frac{1}{2} \quad 0 \quad 0 \quad -1 \quad -\frac{1}{4}} \\ 2 \quad 0 \quad 0 \quad -4 \quad -1 \quad \frac{3}{4} \end{array}$$

$$2y^4 - 4y - 1 + \frac{\frac{3}{4}}{y - \frac{1}{4}} \times 4$$

$$2y^4 - 4y - 1 + \frac{3}{4y - 1}$$