

HW 59

p290

$$27. \begin{array}{r|rrrr} 5 & 3 & -17 & 15 & -25 \\ & \downarrow & 15 & -10 & 25 \\ \hline & 3 & -2 & 5 & 0 \end{array}$$

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

$$28. \begin{array}{r|rrrr} -3 & 5 & 18 & 7 & -6 \\ & \downarrow & -15 & -9 & 6 \\ \hline & 5 & 3 & -2 & 0 \end{array}$$

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

$$29. \begin{array}{r|rrrr} 3 & 6 & 7 & -1 & 26 \\ & \downarrow & 18 & 75 & 222 \\ \hline & 6 & 25 & 74 & 248 \end{array}$$

$$\boxed{6x^2 + 25x + 74 + \frac{248}{x-3}}$$

$$30. \begin{array}{r|rrrr} -6 & 2 & 14 & -20 & 7 \\ & \downarrow & -12 & -12 & 192 \\ \hline & 2 & 2 & -32 & 199 \end{array}$$

$$\boxed{2x^2 + 2x - 32 + \frac{199}{x+6}}$$

$$36. \begin{array}{r|rrrr} -2 & 5 & 0 & 6 & 8 \\ & \downarrow & -10 & 20 & -52 \\ \hline & 5 & -10 & 26 & -44 \end{array}$$

$$\boxed{5x^2 - 10x + 26 - \frac{44}{x+2}}$$

$$37. \begin{array}{r|rrrrr} 6 & 10 & -50 & 0 & 0 & -800 \\ & \downarrow & 60 & 60 & 360 & 2160 \\ \hline & 10 & 10 & 60 & 360 & 1360 \end{array}$$

$$\boxed{10x^3 + 10x^2 + 60x + 360 + \frac{1360}{x-6}}$$

$$38. \begin{array}{r|rrrrr} -3 & 1 & -13 & 0 & 0 & -120 & 80 \\ & \downarrow & -3 & 48 & -144 & 432 & -936 \\ \hline & 1 & -16 & 48 & -144 & 312 & -856 \end{array}$$

$$\boxed{x^4 - 16x^3 + 48x^2 - 144x + 312 - \frac{856}{x+3}}$$

$$\begin{array}{r}
 59. \quad \underline{2} \mid 1 \quad 0 \quad -7 \quad 4 \\
 \quad \quad \downarrow 2 \quad 4 \quad -6 \\
 \hline
 \quad \quad 1 \quad 2 \quad -3 \quad \boxed{0} \quad \checkmark
 \end{array}$$

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

$$\boxed{
 \begin{array}{l}
 (x-2)(x+3)(x-1) \\
 x = 2, -3, 1
 \end{array}
 }$$

$$\begin{array}{r}
 60. \quad \underline{-4} \mid 1 \quad 0 \quad -28 \quad -48 \\
 \quad \quad \downarrow -4 \quad 16 \quad 48 \\
 \hline
 \quad \quad 1 \quad -4 \quad -12 \quad \boxed{0} \quad \checkmark
 \end{array}$$

$$x^2 - 4x - 12 = (x-6)(x+2)$$

$$\boxed{
 \begin{array}{l}
 (x+4)(x-6)(x+2) \\
 x = -4, 6, -2
 \end{array}
 }$$