

P-34 Carry out each long division.

$$1. \quad x \overline{) \begin{array}{r} x^2 + x \\ x^2 \\ \hline x \\ x \\ \hline 0 \end{array}}$$

$$2. \quad x+1 \overline{) \begin{array}{r} x^2 + x \\ x^2 + x \\ \hline 0 \end{array}}$$

$$3. \quad x+2 \overline{) \begin{array}{r} x^2 + 3x + 2 \\ x^2 + 2x \\ \hline x + 2 \\ x + 2 \\ \hline 0 \end{array}}$$

$$4. \quad x+1 \overline{) \begin{array}{r} x^3 + 3x + 2 \\ x^3 + x^2 \\ \hline -x^2 + 3x \\ -x^2 - x \\ \hline 4x + 2 \\ 4x + 4 \\ \hline -2 \end{array}}$$

$$5. \quad x^2+1 \overline{) \begin{array}{r} x^4 - 1 \\ x^4 + x^2 \\ \hline -x^2 - 1 \\ -x^2 - 1 \\ \hline 0 \end{array}}$$

$$6. \quad 2x+3 \overline{) \begin{array}{r} 2x^3 + 5x^2 + 3x \\ 2x^3 + 3x^2 \\ \hline 2x^2 + 3x \\ 2x^2 + 3x \\ \hline 0 \end{array}}$$

$$7. \quad x^2+x \overline{) \begin{array}{r} 2x^3 + 5x^2 + 3x \\ 2x^3 + 2x^2 \\ \hline 3x^2 + 3x \\ 3x^2 + 3x \\ \hline 0 \end{array}}$$

$$8. \quad x^2+x+1 \overline{) \begin{array}{r} x^3 - 1 \\ x^3 + x^2 + x \\ \hline -x^2 - x - 1 \\ -x^2 - x - 1 \\ \hline 0 \end{array}}$$

$$9. \quad 2x+6 \overline{) \begin{array}{r} 2x^3 + 5x^2 + 3x + 2 \\ 2x^3 + 6x^2 \\ \hline -x^2 + 3x \\ -x^2 - 3x \\ \hline 6x + 2 \\ 6x + 18 \\ \hline -16 \end{array}}$$

$$10. \quad x-6 \overline{) \begin{array}{r} 2x^2 - 11x + 12 \\ 2x^2 - 12x \\ \hline x + 12 \\ x - 6 \\ \hline 18 \end{array}}$$

For Problem 10: Did you get a remainder? yes What was it? 18 When is the divisor equal to zero? when x=6 What is the value of the dividend at this number? 18 Is this value the same as the remainder? yes

— Go back and try these questions on Problems 4 and 9. —

$$2(6)^2 - 11(6) + 12 = 2 \cdot 36 - 66 + 12 = 72 - 66 + 12 = 18$$