

Answer Key

Practice A

1. Dividend: $x^3 - 2x^2 - 14x - 5$, Divisor: $x - 5$, Quotient: $x^2 + 3x + 1$, Remainder: 0

2. Dividend: $2x^3 + 3x^2 + 3x + 17$, Divisor: $x + 2$, Quotient: $2x^2 - x + 5$, Remainder: 7

3. Dividend: $x^3 + x - 2$, Divisor: $x - 3$, Quotient: $x^2 + 3x + 10$, Remainder: 28

4. $x + 2 - \frac{8}{x + 1}$ 5. $x + 3 + \frac{3}{x - 2}$

6. $x + 2 - \frac{4}{x + 3}$ 7. $x - 6 - \frac{5}{x - 1}$

8. $x + 2$ 9. $x + 2 + \frac{5}{x - 5}$ 10. $x + 2$

11. $x - 4 + \frac{5}{x + 1}$ 12. $x - 3 - \frac{3}{x - 2}$

13. $x + 4 - \frac{8}{x + 3}$ 14. $x + 1$

15. $x + 5 + \frac{8}{x - 2}$ 16. $x + 6 - \frac{15}{x + 1}$

17. $x - 1 + \frac{6}{x - 2}$ 18. $x - 2$

19. $x + 5 - \frac{2}{x + 1}$ 20. $x - 6$

21. $x + 1 + \frac{3}{x - 4}$ 22. $x + 7$ 23. $x - 2$

24. $x + 3$

25.
$$\begin{array}{r} 3 \ 1 \quad -6 \quad -1 \\ \\ \\ 1 \quad -3 \quad -10 \end{array} = x - 3 - \frac{10}{x - 3}$$

The denominator of the remainder is $x - 3$, not $x + 3$.

26. As written, synthetic division cannot be used because the divisor does not have the form $x - k$.