

Applying the Factor Theorem

1. Use the remainder theorem to determine if the given value is a factor. If not, state that there is a remainder.

a. $P(x) = 2x^3 + 5x^2 - x + 7$ for $x = 2$

b. $P(x) = 6x^4 - 25x^3 - 3x + 5$ for $x = -\frac{1}{3}$

Factor by using the area model.

3. $(x^2 + 7x + 10) \div (x + 2)$

4. $(6x^2 + 5x - 50) \div (2x - 5)$

5. $(-x^2 - 94x + 600) \div (x + 100)$

6. $(x^3 + 7x^2 + 16x + 12) \div (x + 2)$

7. $(x^3 + 9x^2 + x + 9) \div (x + 9)$

8. $(x^4 - 5x^3 - 7x^2 + 36x - 5) \div (x - 5)$

9. $(2x^3 - 11x^2 - 2x + 2) \div (2x + 1)$

10. $(15x^3 + 37x^2 + 53x + 55) \div (3x + 5)$

11. The area of a rectangle is given by the expression $(x^3 + 7x^2 + 11x + 2)$ in². The length of the rectangle is given by the expression $(x + 2)$ in. What is an expression for the width of the rectangle?