Divide to get the quotient \( q(x) \) and remainder \( r(x) \). Write your answer in the form \( p(x) = d(x)q(x) + r(x) \).

2(1). \( \frac{x^6 + 64}{x - 2} \)

3 digit positive remainder

Factor the polynomial and find all the roots (zeros).

4(3). \( x^3 + 8x^2 - 3x - 24 = 0 \). \(-8\) is one root.

3 roots (one integral), chk=14.
3 factors, chk=14

6(1). Find the domain. \( y = \frac{1}{3x + 12} \)

union of 2 intervals, chk=8

7(1). Find the domain. \( y = \sqrt{3x + 12} \)

1 interval, chk=4

8(1). List which (there are three) of \( f, g, F, G \) are functions.

11(1). \( f(x) = 4 - 3x \), \( f(f(x)) = \)

2 term polynomial, 4 symbols, chk=17

15(1). \( g(x) = -2x^2 + 9 \), \( \frac{g(x) - g(a)}{x - a} = \)
Assume \( x \neq a \). 6-symbol polynomial, chk=4