Divide f(x) by d(x) by using long division, and write a summary statement in polynomial form and fraction form.

1. $f(x) = x^2 + 14x + 31;\ d(x) = x + 10$ 2. $f(x) = x^2 + 3x - 44;\ d(x) = x - 6$

3. $f(x) = x^3 + x^2 - 36x + 42;\ d(x) = x + 7$

4. $f(x) = 3x^3 - 14x^2 - 22x + 70;\ d(x) = 3x + 7$

Tell whether or not *d(x)* is a factor of *f(x)*.

5. $f(x) = 4x^3 + 50x^2 + 105x + 56;\ d(x) = x + 10$

Tell whether or not *d(x)* is a factor of *f(x)*.

6. $f(x) = x^3 + 13x^2 + 42x + 54;\ d(x) = x + 9$

Divide f(x) by d(x) by using synthetic division, and write a summary statement in polynomial form and fraction form.

7. $f(x) = x^2 + 2x - 36;\ d(x) = x - 5$

8. $f(x) = 2x^3 + 4x^2 - 5; d(x) = x + 3$

9. $f(x) = x^3 - 13x^2 + 40x + 18;\ d(x) = x - 7$

10. $f(x) = x^3 + 7x^2 + 14x + 3;\ d(x) = x + 2$