Homework Problem Set Sample Solutions

Use synthetic division for each problem.

1. $\left(2x^2-x-4\right)\div\left(x-3\right)=2x+5+\dfrac{11}{x-3}$

2. $\left(x^4-x^3+4x+2\right)\div\left(x+1\right)=x^3-2x^2+2x+2$

3. $\dfrac{3x^3+2x^2-x+3}{x+4}=3x^2-10x+39-\dfrac{153}{x+4}$

4. $\dfrac{2x^2-x-4}{x-3}=2x+5+\dfrac{19}{x-3}$

5. $P(x)=x^3+2x^2-7$ and $Q(x)=x+2$, what is $P(x)\div Q(x)$?

   $x^2-\dfrac{7}{x+2}$

For additional practice, you could have students determine which problems in Lessons 4, 5, 6 or 19 could be done with synthetic division and then try those problems again but this time using synthetic division.

Kuta Software has an *Algebra 1 Dividing Polynomials* worksheet where the problems can be done using synthetic division. For those not in the form ($x-k$), challenge students to find a way to still use synthetic division.