Name: _____ Date: _____

| **Learning Goal 3.2** | Factoring, including the factor theorem and the remainder theorem. |
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**More Questions**

1. For what values of $a$ could $x - a$ be a factor of $f(x) = x^5 + 6x^4 - 5x^3 - 30x^2 + 4x + 24$.
2. Eliminate any binomial that is not a factor of $f(x)$.
3. Factor $f(x)$.

4. Factor $3y^3 + 13y^2 - 16$ fully.

5. Determine the value(s) of $k$ so that the binomial is a factor of the polynomial.
   a. $P(x) = x^3 + 5x^2 + kx + 6$ $x + 2$
   b. $P(x) = kx^3 - 10x^2 + 2x + 3$ $x - 3$

6. The product of four integers is $x^4 + 7x^3 + 7x^2 - 15x$, where $x$ is one of the integers. What are the possible expressions for the other three integers?