Think It Through
September 2022

Check in with your teacher after solving EACH problem.

1. Factor completely, wherever possible check your work by expanding. Solve each problem using decomposition.
   (a) $10p^2 - 27p + 5$

   (b) $5y^2 + 23y + 12$

   (c) $3x^2 + 40x + 48$

   (d) $7y^2 + 9y - 36$

   (e) $25z^2 + 50z + 9$

   (f) $81y^2 - 9$

   (g) $9x^2 - 1$

   (h) $x^2y^2 - 4x^2$

   (i) $z^4 - 1$

   (j) $x^2 + 4x + 4$

   (k) $9x^2 + 24x + 16$

   (l) $16x^2 - 48x + 36$

   (m) $4(x + 2)^2 - 9(x - 4)^2$

   (n) $16e^{4x} - 4$

More Challenging: Check in with your teacher after solving EACH problem.

2. $a^3 + b^3 = 2593080$, $a + b = 210$, $ab =$?

3. Given that $a + b = 1$ and $a^2 + b^2 = 2$, What is the value of $a^7 + b^7$.

4. If $x^2 - 5x - 1 = 0$, then find the value of $x^2 + \dfrac{1}{x^2}$.