Hello future physicists! Test your math kung-fu on these review problems. **Show your work and box final answers!** Please email me with any questions (cbooth@ojrsd.com). These problems are due in class when we return to school.

1. Solve for $d_x$ and $d_y$ using the given information.

![Right Triangle Diagram]

- $d = 10 \text{ m}$
- $\theta = 37^\circ$

2. Find the roots of the quadratic equation: $4x^2 + 7x - 2 = 0$. Please express answers as decimals with three significant figures.
3. Given the following two equations, derive an expression for $a$ only in terms of $m_1, m_2,$ and $g$.

   Equation 1: $T - m_1 g = -m_1 a$

   Equation 2: $T - m_2 g = m_2 a$

4. Solve the following system of equations for $R_1, R_2, R_3$.

   Equation 1: $4R_1 + 2R_2 - 5R_3 = 10$

   Equation 2: $2R_1 - 6R_2 - 7R_3 = 15$

   Equation 3: $-3R_1 + 3R_2 + 8R_3 = -5$