Lesson 2.8 Check Your Understanding

**Learning Goal # 1**: Determine the number of real solutions for a linear-quadratic system by graphing

[ ]  I can go above and beyond this goal and teach it to others

[ ]  I can achieve this goal on my own without any help

[ ]  I can achieve this goal with some help from my teacher or peers

[ ]  I can achieve this goal if I am helped step by step

Proof of Understanding:

Graph the functions in each linear-quadratic system. Determine the number of real solutions for the system.

1. $\left\{\begin{array}{c}y=\frac{2}{5}x^{2}\\y=x-2\end{array}\right.$
2. $\left\{\begin{array}{c}y=-x-1\\3x^{2}+2y=4\end{array}\right.$
3. $\left\{\begin{array}{c}y=3\\y=x^{2}-4x+7\end{array}\right.$

**Learning Goal # 2:** Solve a linear-quadratic system algebraically

[ ]  I can go above and beyond this goal and teach it to others

[ ]  I can achieve this goal on my own without any help

[ ]  I can achieve this goal with some help from my teacher or peers

[ ]  I can achieve this goal if I am helped step by step

Proof of Understanding:

Solve each linear-quadratic system using the substitution method (find the number of real solutions only).

1. $\left\{\begin{array}{c}y=3x^{2}+7x-10\\y-19x=22\end{array}\right.$
2. $\left\{\begin{array}{c}y=3x^{2}\\y-3x=-2\end{array}\right.$
3. $\left\{\begin{array}{c}y=3x^{2}-4x\\27+y=14x\end{array}\right.$

**Learning Goal # 3:** Solve a linear-quadratic system using technology

[ ]  I can go above and beyond this goal and teach it to others

[ ]  I can achieve this goal on my own without any help

[ ]  I can achieve this goal with some help from my teacher or peers

[ ]  I can achieve this goal if I am helped step by step

Proof of Understanding:

Solve each equation by writing a linear-quadratic system and solving using the intersection feature of a graphing calculator. Round to the nearest hundredth.

1. $6x^{2}-15x+8=17-4x$
2. $7x^{2}-28x+32=4$

**Apply the concepts: Solve linear-quadratic systems given a real-world context**

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Proof of Understanding:

1. Nate tosses a ball up a hill for his dog to chase. The path of the ball is modeled by the function y = $-\frac{1}{4}x^{2}+\frac{33}{5}x$, where x is the ball’s horizontal distance from Nate in feet and y is the ball’s height in feet. The hill is modeled by the line y = $\frac{1}{5}x$. How far does the ball travel horizontally before it hits the ground?

